REF
QK1
.M833
c.3

ICONES PLEUROTHALLIDINARUM
XVIII

SYSTEMATICS
OF
PLEUROTHALLIS
SUBGEN. PLEUROTHALLIS
SECT. PLEUROTHALLIS
SUBSECT. ANTENNIFERAE
SUBSECT. LONGIRACEMOSAE
SUBSECT. MACROPHYLLAE-RACEMOSAE
SUBSECT. PERPLEXAE
SUBGEN. PSEUDOSTELIS
SUBGEN. ACUMINATIA

ADDENDA TO DRACULA, LEPANTHES, MASDEVALLIA AND PLEUROTHALLIS
MISCELLANEOUS NEW SPECIES OF DRYADELLA, LEPANTHES AND PLEUROTHALLIS

Missouri Botanical Garden

ICONES PLEUROTHALLIDINARUM
XVIII

SYSTEMATICS OF PLEUROTHALLIS

SUBGEN. PLEUROTHALLIS
SECT. PLEUROTHALLIS

SUBSECT. ANTENNIFERAE

SUBSECT. LONGIRACEMOSAE

SUBSECT. MACROPHYLLAE-RACEMOSAE

SUBSECT. PERPLEXAE

SUBGEN. PSEUDOSTELIS

SUBGEN. ACUMINATIA

ADDENDA TO DRACULA, LEPANTHES, MASDEVALLIA AND PLEUROTHALLIS
MISCELLANEOUS NEW SPECIES OF DRYADELLA, LEPANTHES AND PLEUROTHALLIS

MISSOURI BOTANICAL
MAR 0 8 2000
GARDEN LIBRARY

Missouri Botanical Garden

MONOGRAPHS IN SYSTEMATIC BOTANY
FROM THE MISSOURI BOTANICAL GARDEN

Volume 76

Published in November 1999 in an edition
of 500 copies.

ISSN 0161-1542
ISBN 0-915279-79-7

Carlyle A. Luer
3222 Old Oak Drive
Sarasota, FL 34239-5019

EDITOR
Victoria C. Hollowell

MANAGING EDITOR
Amy Scheuler McPherson

EDITORIAL ASSISTANT
Diana Gunter

TEXT FORMATTER
Barbara Mack

SENIOR SECRETARY
Vicki Couture

Copyright (c) 1999 by Missouri Botanical Garden Press
All rights reserved
Printed in the U.S.A. by Coastal Printing, Inc.,
Sarasota, FL
Composed at 3222 Old Oak Drive, Sarasota, Florida
with WordStar 7.0
Typeset with a Texas Instruments microLaser Plus

Copies of this book are available through
Missouri Botanical Garden
MBG Press Orders
4344 Shaw Blvd.
St. Louis, MO 63110-2291, U.S.A.
http://www.mobot.org

CONTENTS

Pleurothallis cachabensis ..... Frontispiece

Subgenus *Pleurothallis*
Section *Pleurothallis*

Subsection *Antenniferae* 1-28
List of the species 2-3
Key to the species 4-6
Descriptions of species 7-28
Subsection *Longiracemosae* 29-36
List of the species 30
Key to the species 30
Descriptions of species 31-36
Subsection *Macrophyllae-Racemosae* 37-61
List of the species 38
Key to the species 39-40
Descriptions of species 41-61
Illustrations of the species 62-83
Subsection *Perplexae* 83
Index to all three subsections 84-85

Subgenus *Pseudostelis*

Subgenus *Pseudostelis* 87-96
List of the species 88
Key to the species 88
Descriptions of species 89-93
Illustrations of species 94-95
Index to *Pseudostelis* 96

Subgenus *Acuminatia*

Subgenus *Acuminatia* 97-125
List of the species 99-100
Key to the species 101-102
Descriptions of species 103-125
Binomials in subgenus *Acuminatia* endemic in Brazil 125
Illustrations of species 126-133
Index to *Acuminatia* 134

Addenda 135-158
Miscellaneous New Species 159-180
Index to addenda and new species 181
References and Acknowledgments for all parts 182

Pleurothallis cachabensis Luer & Hirtz, Province of Imbabura, Ecuador, circa 1000 meters above sea level, 20 January 1987, photo by Alexander C. Hirtz.

SYSTEMATICS OF *PLEUROTHALLIS* SECTION *PLEUROTHALLIS* SUBSECTIONS *ANTENNIFERAE, LONGIRACEMOSAE, MACROPHYLLAE-RACEMOSAE* AND *PERPLEXAE* (ORCHIDACEAE)

ABSTRACT

A brief review of *Pleurothallis* R.Br. subgen. *Pleurothallis* is given. Sect. *Pleurothallis* subsections *Antenniferae, Longiracemosae, Macrophyllae-Racemosae* and *Perplexae* are described, and keys to the species are given. Each species is described and illustrated with a black and white drawing.

Names of new taxa:
Pleurothallis subsect. **Perplexae** Luer, subsect. nov.
Pleurothallis archidonopsis Luer & Hirtz, sp. nov.
Pleurothallis madsenii Luer, sp. nov.
Pleurothallis pulcherrima Luer, sp. nov.
Pleurothallis tenebrosa Luer, sp. nov.
Pleurothallis uninervia Luer & Dodson, sp. nov.

Subgenus *Pleurothallis* is composed of three sections: *Pleurothallis*, and two unispecific sections: *Abortivae* and *Truncatae*. Section *Pleurothallis* is characterized by an elongate, non-compressed ramicaul, an essentially free dorsal sepal, connate lateral sepals, a variously developed lip with a simple base, a semiterete, wingless and toothless column with an apical, unhooded anther, an apical or subapical stigma, and an abbreviated or vestigial column-foot.

Section *Pleurothallis* is presently subdivided into seven subsections: *Acroniae, Antenniferae, Longiracemosae, Macrophyllae-Fasciculatae, Macrophyllae-Racemosae, Pleurothallis*, and *Perplexae*. All the subsections are interrelated, sometimes with overlapping boundaries and intermediate species, the differences relying only on key characters. A key to the sections and subsections is provided in *Icones Pleurothallidinarum-17* (Luer, 1998) with the treatments of subsections *Acroniae* and *Pleurothallis*. Treatments of subsections *Antenniferae, Longiracemosae, Macrophyllae-Racemosae* and *Perplexae* follow in this publication of *Icones Pleurothallidinarum-18*. Subsection *Macrophyllae-fasciculatae* will be treated separately because of the large number of species.

SUBSECTION *ANTENNIFERAE*

Pleurothallis subgen. **Pleurothallis** sect. **Pleurothallis** subsect. **Antenniferae** Luer, Monogr. Syst. Bot. 72: 4, 1998.

Type: *Pleurothallis antennifera* Lindl.
Ety.: From the Latin *antennifer*, "antenna-bearing," referring to the expanded, narrow petals.

Plants perennial, small to large in size, normally epiphytic to terrestrial, caespitose to repent; roots slender. Ramicauls erect to suberect, terete, elongate, non-pseudobulbous, unifoliate, with a closely fitting, loose, or inflated tubular sheath below the middle and 2-3 other sheaths at the base. **Leaf** erect, suberect or spreading, coriaceous, smooth, narrowly or broadly elliptical to ovate, the apex acute to subacute, shallowly notched with a mucro in the sinus, the base sessile, variously cuneate to rounded,

rarely subpetiolate. **Inflorescence** racemose, the flowers usually resupinate, variously colored, borne by a slender peduncle that emerges from the apex of the ramicaul at the base of the leaf with a reclining spathe; floral bracts thin, infundibular or tubular, acute; pedicels usually exceeding the floral bract; ovary smooth, trivalvate; **sepals** glabrous, membranous, acute, subacute or obtuse, to acuminate, the dorsal sepal free from the lateral sepals, the lateral sepals completely connate into a shallowly concave or cucullate synsepal; **petals** more or less thickened, expanded, narrowly oblong to narrowly linear, acute to acuminate, entire; **lip** variously trilobed, the lobes basal or lateral, rounded, obtuse, acute, to linear, deflexed near or below the middle or at the base, flexibly or inflexibly attached to the thickened base of the column or column-foot; **column** terete, non-winged, the anther apical and the stigma apical or subapical, pollinia 2, obovoid, with a microscopic viscidium, the base of the column thickened with the apex of the ovary.

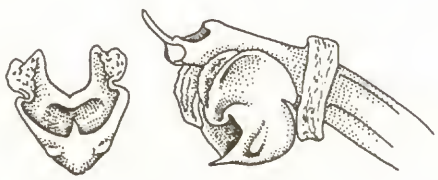
The first species attributable to subsection *Antenniferae* was described from Peru by Ruiz and Pavón in 1798 as *Humboldtia revoluta*. Poeppig and Endlicher described it also from Peru as *Pleurothallis diffusa* in 1836, Reichenbach described it from Venezuela as *P. semipellucida* in 1849, and Rolfe described it as *P. complicata* from Bolivia in 1896. Poeppig and Endlicher also described *P. secunda* in 1836. Several other species of the subsection were added by both Lindley and Reichenbach in the nineteenth century, and a few were added in the early twentieth century by Kränzlin and Schlechter. Numerous species have been added during the last quarter-century. At present, 38 species are known. They are widely distributed in humid forests of the Andes of South America. They are absent from Central America, the Antilles and Brazil.

Subsection *Antenniferae* is characterized by a caespitose or repent habit with well-developed ramicauls that are usually longer than the leaf. The usually erect, racemose inflorescence is terminal at the base of a sessile leaf. Rarely the leaf is narrowed into a subpetiolate base. The flowers are basically similar and usually resupinate. As in the other subsections, the dorsal sepal is free from the laterals, and the lateral sepals are connate into a concave or cucullate synsepal. The petals are more or less thickened, entire, narrowly oblong to narrowly linear, and expanded. The lip is three-lobed with the lobes lateral and prominent, either broadly rounded or elongated, sometimes markedly so. The lip is variously recurved near the middle, usually acutely so, so that the lip is bent 90° to 180°. A glenion is not usually developed. The deflexed base is attached to an abbreviated column-foot. The column is semiterete, usually short, with anther and stigma apical or subapical.

BINOMIALS PUBLISHED IN *PLEUROTHALLIS* REFERABLE TO SUBSECTION *ANTENNIFERAE*

Pleurothallis alveolata Luer ..... Fig. 1.
Pleurothallis antennifera Lindl. ..... Fig. 2.
Pleurothallis aporosis Luer ..... Fig. 3.
Pleurothallis aves-seriales Luer & Escobar = **P. penduliflora**
Pleurothallis bicochlearis Luer ..... Fig. 4.
Pleurothallis bicruris Lindl. ..... Fig. 5.
Pleurothallis brachiata Luer ..... Fig. 6.
Pleurothallis complicata Rolfe = **P. revoluta**
Pleurothallis cyclochila Lindl. = **P. antennifera**
Pleurothallis cymbisepala Schltr. ..... Fig. 7.
Pleurothallis demissa Luer & Vásquez ..... Fig. 8.
Pleurothallis diffusa Poepp. & Endl. = **P. revoluta**

Pleurothallis diffusa var. *grandiflora* (C.Schweinf.) C.Schweinf. = **P. penduliflora**
Pleurothallis diploglossa Schltr. = **P. bicruris**
Pleurothallis eccentrica Luer & Hirtz.....Fig. 9.
Pleurothallis eidos Luer.....Fig. 10.
Pleurothallis genychila Schltr. .....Fig. 11.
Pleurothallis hippocrepica Luer & Escobar.....Fig. 12.
Pleurothallis hjertingii Luer.....Fig. 13.
Pleurothallis imbaburae Luer & Hirtz.....Fig. 14.
Pleurothallis incurva Lindl. = **P. antennifera**
Pleurothallis lenae Luer & Dalström.....Fig. 15.
Pleurothallis lindenii var. *longiracema* C.Schweinf. = **P. hjertingii**
Pleurothallis loejtnantii Luer .....Fig. 16.
Pleurothallis madsenii Luer .....Fig. 17.
Pleurothallis manicosa Luer & Escobar.....Fig. 18.
Pleurothallis melanosticta Luer .....Fig. 19.
Pleurothallis nasiterna Luer.....Fig. 20.
Pleurothallis parviflora Luer .....Fig. 21.
Pleurothallis penduliflora Kraenzl. .....Figs. 22, 23.
Pleurothallis ptychophora Luer.....Fig. 24.
Pleurothallis pulvinaris Luer & Escobar.....Fig. 25.
Pleurothallis ramificans Luer.....Fig. 26.
Pleurothallis revoluta (Ruiz & Pav.) Garay.....Fig. 27.
Pleurothallis roseola Luer & Hirtz .....Fig. 28.
Pleurothallis saltatoria Lindl. .....Fig. 29.
Pleurothallis scintillata Luer.....Fig. 30.
Pleurothallis secunda Poepp. & Endl. .....Fig. 31.
Pleurothallis secunda var. *longiracema* C.Schweinf. = **P. hjertingii**
Pleurothallis semipellucida Rchb.f. = **P. revoluta**
Pleurothallis semipellucida var. *grandiflora* C.Schweinf. = **P. penduliflora**
Pleurothallis suspensa Luer.....Fig. 32.
Pleurothallis taurus Luer.....Fig. 33.
Pleurothallis tectosa Luer & Hirtz.....Fig. 34.
Pleurothallis tenebrosa Luer .....Fig. 35.
Pleurothallis trifurcata Luer .....Fig. 36.
Pleurothallis tuzae Luer.....Fig. 37.
Pleurothallis urceolata Luer.....Fig. 38.
Pleurothallis veliformis Luer & Dalström.....Fig. 39.



KEY TO THE SPECIES OF SUBSECTION *ANTENNIFERAE*

1 Leaf narrowed into a subpetiolate base 2
1' Leaf sessile, cuneate to cordate 3

2 Lip with the midlobe obtuse to rounded ..... *P. pulvinaris*
2' Lip with the midlobe oblong, acute ..... *P. tuzae*

3 Leaf cordate with basal lobes extending beyond the base 4
3' Leaf cuneate with margins of the leaf not extending beyond the spathe 8

4 Lip with short or obscure lateral lobes 5
4' Lip with lateral lobes as large as the midlobe 6

5 Sepals spotted with purple; lip convex ..... *P. roseola*
5' Sepals translucent yellow; lip concave ..... *P. eidos*

6 Ramicauls with greatly inflated sheaths; leaf deeply cordate ..... *P. manicosa*
6' Ramicauls without inflated sheaths 7

7 Lip with midlobe short, acutely reflexed ..... *P. lenae*
7' Lip with midlobe oblong, not reflexed ..... *P. penduliflora*

8 Plant prolific, ramicauls producing other ramicauls 9
8' Plant not prolific, ramicauls not producing other ramicauls 14

9 Lip with lateral lobes narrow 10
9' Lip with lateral lobes broad 11

10 Lip with lateral lobes much longer than the midlobe ..... *P. taurus*
10' Lip with lateral lobes about as long as the midlobe ..... *P. ramificans*

11 Sepals less than 4 mm long; lip with lateral lobes much smaller than the midlobe, broad as long ..... *P. madsenii*
11' Sepals more than 9 mm long; lip with lateral lobes as large as the midlobe 12

12 Lip with the midlobe long-apiculate, much smaller than the lateral lobe ..... *P. veliformis*
12' Lip with midlobe not apiculate, much smaller than the lateral lobes 13

13 Spathe 2-3 cm long; raceme erect ..... *P. hjertingii*
13' Spathe 1 cm long; raceme arching, pendent ..... *P. saltatoria*

14 Lip with more or less erect, lobe-like, lateral margins 15
14' Lip with protruding, well demarcated, lateral lobes 26

15 Lip with lateral margins with verrucose calli ..... *P. melanosticta*
15' Lip with lateral margins not with verrucose calli 16

16 Lip with large, erect basal lobes, erose at the apex.....*P. imbaburae*
16' Lip not with large, erect basal lobes.....17

17 Inflorescence much shorter than the leaf.....18
17' Inflorescence longer than the leaf.....19

18 Sepals more than 10 mm long; lip minutely erose.....*P. aporosis*
18' Sepals less than 5 mm long; lip entire, dark brown across the basal half.....
.....*P. tenebrosa*

19 Lip transverse, broader than long.....20
19' Lip about as broad as long with the apex round, apiculate.....23

20 Lip acutely revolute.....21
20' Lip triangular when expanded, sharply obtuse, lobes retrorse, elongate.....22

21 Lip dumbbell-shaped.....*P. scintillata*
21' Lip deeply concave above the middle.....*P. alveolata*

22 Lip with curved calli within the margins of the lobes.....*P. secunda*
22' Lip without curved calli within the margins of the lobes.....*P. demissa*

23 Petals subclavate.....*P. loejtnantii*
23' Petals narrowly acute.....24

24 Lip ovate, not acutely revolute, not concave medially.....*P. cymbisepala*
24' Lip acutely revolute.....25

25 Racemes erect; lip concave medially.....*P. revoluta*
25' Racemes pendent; lip convex medially.....*P. suspensa*

26 Lip with lateral lobes elongate, narrow.....27
26' Lip with lateral lobes broad, antrorse.....31

27 Lip with lobes antrorse, straight, acute, with midlobe very small, reflexed.....
.....*P. bicruris*
27' Lip not as above.....28

28 Lip with lobes descending, about as large as the triangular midlobe..*P. trifurcata*
28' Lip with lobes antrorse, incurved.....29

29 Lip with lobes slender, about as long as the midlobe.....*P. brachiata*
29' Lip with lobes longer than the midlobe.....30

30 Lip with midlobe short, acutely reflexed.....*P. hippocrepica*
30' Lip with midlobe not acutely reflexed (plant usually prolific).....*P. taurus*

31 Inflorescence 1- to 2-flowered; lip with midlobe not reflexed.....*P. eccentrica*
31' Inflorescence many-flowered.....32

32 Lip with midlobe acutely reflexed 180° 33
32' Lip with midlobe reflexed about 90° 36

33 Lip deeply concave.....34
33' Lip not deeply concave 35

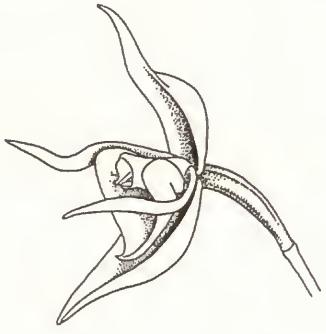
34 Lip deeply concave above the middle, with the apex acuminate, spout-like.....
.....*P. urceolata*
34' Lip deeply concave centrally, with the lobes forming a roof over the cavity.....
.....*P. tectosa*

35 Lip with lateral lobes concave, shell-shaped.....*P. bicochlearis*
35' Lip with lateral lobes not concave.....*P. ptychophora*

36 Rhizome usually elongated; lip with midlobe round, minutely apiculate.....
.....*P. antennifera*
36' Rhizome not elongated; lip with midlobe long-apiculate.....37

37 Sepals less than 3 mm long .....*P. parviflora*
37' Sepals more than 5 mm long.....38

38 Synsepal deeply concave with spout-like apex; lip with lateral lobes thickened, not narrowed at their base.....*P. nasiturna*
38' Synsepal not deeply concave; lip with lateral lobes broad, narrowed at their base
.....*P. genychila*



Pleurothallis alveolata Luer, Selbyana 3: 48, 1976.

Ety.: From the Latin *alveolatus*, "with a small cavity," in allusion to the lip that resembles a bloody socket following the extraction of a tooth.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-15 cm long, with a loose, tubular sheath on the lower third and another at the base. **Leaf** erect, coriaceous, elliptical-ovate, acute, slightly acuminate, 5-12 cm long, 2.5-5 cm wide, the base rounded or broadly cuneate into the sessile base. **Inflorescence** 1-2 erect, strict, subcongested, distichous, simultaneously several- to many-flowered racemes, 7-16 cm long including the peduncle 2-5 cm long, from a slender spathe 1-1.5 cm long at the base of the leaf; floral bracts oblique, 1.5-2 mm long; pedicels 1 mm long; ovary 2 mm long; flowers non-resupinate, **sepals** pale yellow or pale green, glabrous, the middle sepal ovate, subacute, 4-5 mm long, 2.75 mm wide, 3-veined, the lateral sepals connate to the apex into a deeply concave, ovoid, obtuse, uppermost synsepal, 4-5 mm long, 4-5 mm wide, 4-veined; **petals** pale yellow or pale green, oblong-elliptical, acute, 2.75 mm long, 0.5-1 mm wide, 1-veined; **lip** green, suffused and marked with rose, ovoid, broadly obtuse, 2 mm long, 2 mm wide, deeply concave above the middle, thick below the middle, with the base acutely reflexed, hinged to the base of a footless column; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Pastaza**: felled trees east of Puyo, alt. ca. 600 m, 19 Mar. 1976, cultivated 24 June 1976, *C. Luer, J. Luer & P. Taylor 697* (Holotype: SEL); between Veracruz and Canelos, 25 June 1968, *H. Lugo 71* (AMES, GB); Mera, Isidro Ayora, ca. 1000 m, 18 Jan. 1982, *G. Harling et al. 19714, 19715* (GB). **Tunurahua**: Río Mapoto confluence with Río Pastaza, alt. 1225 m, 21 Mar. 1939, *C.W. Penland & R.H. Summers 212* (AMES, NY). **Napo**: east slope of Volcán Reventador, north of Baeza, alt. 1850 m, 11 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11775* (MO). **Morona-Santiago**: trail between Macas and Riobamba, alt. ca. 1100 m, 30 Mar. 1974, *G. Harling & L. Andersson 13026* (AMES, GB); between Limón and La Union, alt. 1400-1500 m, 22 Apr. 1985, *G. Harling & L. Andersson 24426* (GB); Cordillera del Condor, east of Los Encuentros, alt. 1600 m, 4 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12628* (MO); Dos Monos, north of Macas, alt. 1000 m, cultivated May 1992 by *F L Stevenson 90-0213-1* (MO). **Zamora-Chinchipe**: east of Loja toward Zamora, alt. 1800 m, 21 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 4121* (AAU, AMES); Cordillera del Condor, east of Paquisha, alt. 1400-1500 m, 13 Apr. 1985, *G. Harling & L. Andersson 24084* (AMES, GB); Romerillo Alto on Río Jamboe, alt. 1500 m, 19 May 1986, *D. D'Alessandro 712* (MO); south of Zaruma toward Zumba, alt. 1100 m, 3 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12609* (MO).

This species occurs relatively frequently in southeastern Ecuador at lower altitudes. It is characterized by a slender ramicaul clad on the lower third by a loose sheath; an elliptical-ovate leaf equaled or surpassed by one or two crowded racemes of greenish, non-resupinate flowers. The uppermost synsepal is deeply cucullate. The lip is short and thick, acutely reflexed below the middle, and with a deep cavity above the middle.

Pleurothallis antennifera Lindl., Folia Orchid. *Pleurothallis* 30, 1859.

Ety.: From the Latin *antennifer*, "bearing an antenna," doubtlessly referring to the petals.

Syn.: *Pleurothallis cyclochila* Lindl., Folia Orchid. *Pleurothallis* 8, 1859.
Ety.: From the Greek *cyclocheilos*, "a round lip," referring to the midlobe of the labellum.

Syn.: *Pleurothallis incurva* Lindl., Folia Orchid. *Pleurothallis* 30, 1859.
Ety.: From the Latin *incurvus*, "incurved," referring to the lobes of the labellum.

Syn.: *Humboldtia antennifera* (Lindl.) Kuntze, Rev. Gen. Pl. 667, 1891.
Syn.: *Humboldtia cyclochila* (Lindl.) Kuntze, Rev. Gen. Pl. 667, 1891.
Syn.: *Humboldtia incurva* (Lindl.) Kuntze, Rev. Gen. Pl. 667, 1891.

Plant medium in size to large, epiphytic, repent, the rhizome 1-5 cm long between ramicauls, uncommonly caespitose; roots slender. Ramicauls slender, occasionally proliferating, ascending to erect, 10-40 cm long, with a tubular sheath above the middle, another below the middle and another sheath at the base. **Leaf** erect, coriaceous, elliptical-ovate, acute, 6-16 cm long, 2-4 cm wide, broadly cuneate below into the sessile base. **Inflorescence** 1-2, erect, strict, subcongested, secund, simultaneously many-flowered racemes, 7-28 cm long including the peduncle 1-5 cm long, from a spathe 1-1.5 cm long; floral bracts oblique, acute, 3-4 mm long; pedicel 4 mm long; ovary 2-2.5 mm long; **sepals** translucent yellow to light green, sometimes spotted with purple or brown, glabrous, subcarinate, the dorsal sepal ovate, acute, concave, 5-7 mm long, 2.5-3 mm wide, 3-veined, the lateral sepals connate to the apex into a deeply concave, ovoid, obtuse, more or less acuminate synsepal, 5-7 mm long, 3-5 mm wide, 6-veined; **petals** yellow or green, thick, narrowly linear-oblong, acute, 5-7.5 mm long, 0.3-0.6 mm wide; **lip**

yellow or green, 3-lobed, 1.5 mm long, 3.5-5 mm wide across the lobes expanded, the anterior lobe or apex ovate, subacute to obtuse, apiculate, the lateral lobes oblong, incurved, round at the tip, each ca. 1.5 mm long, acutely deflexed above the base, attached to the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Pichincha**: "ravines of Pichincha," *W. Jameson 84* (Holotype: K; Isotype: W); "Andes of Quito," *W. Jameson 106* (holotype of *P. incurva*: K; isotype: W); valley of Lloa, alt. 8,000 ft., 21 Jan. 1856, *W. Jameson 414* (AMES); between Calacalí and La Liberia, alt. 2500 m, 7 Apr. 1984, *C. Luer, S. Dalström, T. Höijer & A. Hirtz 10016* (MO); beyond Calacalí, alt. 2650 m, 4 Apr. 1985, *C.H. Dodson et al. 15773* (MO); above Tandapi, alt. 2500 m, 31 Mar. 1985, *C. Luer, J. Luer, A. & X. Hirtz 11013* (MO); between San Juan and Chiriboga, alt. 2650 m, 28 May 1988, *C. Luer & A. Hirtz 13693* (MO). **Carchi**: above Maldonado, alt. 2600 m, 1 Mar. 1974, *G. Harling & L. Andersson 12385* (GB); between Tulcán and Maldonado, alt. 2400 m, 2 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9952* (MO); same area, alt. 2100 m, 19 Jan. 1988, *U. Molau, B. Eriksen & M. Fredrikson 2608* (GB); between Maldonado and Chical, alt. 1400 m, 17 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15104* (MO); west of Tulcán above Maldonado, alt. 3250 m, 14 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup 16003* (MO). **Imbabura**: west of Otavalo toward Selva Alegre, alt. 2970 m, 20 Mar. 1986, *C.H. Dodson, A. & X. Hirtz 16407, 16410* (MO); Selva Alegre, alt. 1400 m, May 1989, *A. Hirtz & X. Hirtz 4227* (MO); southeast of Lita, road to Cachaco, alt. 1300 m, 19 Mar. 1991 *C. Luer, J. Luer & A. Hirtz 15177* (MO). **Tungurahua**: along Río Verde between Baños and Puyo, alt. 1300-1400 m, 17 July 1967, *B. Sparre 17677* (S). **Chimborazo**: near Puela, 10 Oct. 1968, *H. Lugo 583* (AMES, GB). **Morona-Santiago**: between Gualaceo and Limón, alt. 2150 m, 17 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13404* (MO). **Loja**: south of Loja, alt. 2400-2500 m, 18 Apr. 1946, *R. Espinosa 182* (AMES, LOJA); military road east of Yangana, alt. 2500 m, 22 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10804, 10811* (MO); Cerro Toledo, southeast of Yangana, alt. 2300 m, 7 Apr. 1985, *G. Harling & L. Andersson 23809* (GB); Nudo de Sabanilla, alt. 2600 m, 9 Feb. 1982, *G. Harling et al. 20487, 20488, 20489, 20497* (GB); Altos de Numbala east of Yangana, alt. 2500-2900 m, May 1985, *D. D'Alessandro 398* (MO); Parqué Nacional Podocarpus, Cerro Toledo, alt. 2500-3400 m, 30 Oct. 1989, *J. E. Madsen 86256* (AAU, QCA). **Morona-Santiago**: Campamento between Sigsig and Gualaquiza, 9 Apr. 1968, *G. Harling, G. Storm & B. Ström 8120* (AMES, GB). **Zamora-Chinchipe**: Nudo de Sabanilla, above Valladolid, alt. 2700 m, 4 Apr. 1985, *G. Harling & L. Andersson 23677* (GB); above Valladolid, alt. 2450 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10929* (MO). "Sandillani," alt. 7,000-8,000 ft., Apr. 1866, *R. Pierce s.n.* (K).

COLOMBIA: Mariquita, 1849, *J.J. Triana 124* (holotype of *P. cyclochila*: K; isotype: W), C. Luer illustr. 16365. **Antioquia**: El Carmen, above San Lorenzo, alt. 2500 m, 21 Mar. 1989, *C. Luer, J. Luer & W. Teague 14329* (MO); Cocomá, quebrada El Viaho, alt. 1900 m, collected by J. Lopez, cultivated at Colomborquídeas, 10 June 1997, *R. Escobar 5521* (MO). *Boyacá*: El Taladró, collected by E. Valencia, cultivated by Colomborquídeas, 16 May 1993, *C. Luer 16869* (MO). **Cundinamarca**: terrestrial, near Facatativá, alt. 2700-2900 m, 8 June 1952, *M. Schneider 300* (AMES, S). **Risaralda**: Sta. Rosa de Cabal, finca Berlin, alt. 3190 m, 8 May 1986, *J. Wolf 978* (COL, MO). **Cauca**: Alto de la Laguna, westem slopes of Munchiqui, alt. 2300 m, 3 Mar. 1884, *F.C. Lehmann 3645* (K), C. Luer illustr. 17093; Corrales, Volcán Puracé, alt. 8,000 ft., 18 May 1878, *F.C. Lehmann s.n.* (W). **Valle del Cauca**: Cali, Los Farallones de Cali, alt. 3350 m, 22 Jan. 1976, *D. Hartman 275* (CUVC); El Cairo, Cerro del Inglés, alt. 2260 m, 5 Jan. 1987, *F. Silverstone et al. 2947* (CUVC, MO). **Nariño**: above Ricaurte, alt. 1600 m, 3 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4577* (SEL).

VENEZUELA; **Táchira**: Páramo de Tamá, alt. 2500-2900 m, 15 July 1944, *J. A. Steyermark 57289* (AMES).

PERU: **Cajamarca**: Cutervo, between San Andrés and Sócota, alt. 2500 m, 19 Apr. 1988, *C. Díaz & S. Baldeón 2808* (F, MO).

BOLIVIA: **La Paz**: Nor Yungas, north of Unduavi, alt. 2800 m, 4 Feb. 1980, *C. Luer, J. Luer & R. Vásquez 5109* (SEL). **Cochabamba**: road to Tablas, alt. 2400 m, 9 Feb. 1980, *C. Luer, J. Luer & R. Vásquez 5178* (SEL).

This species is frequent and widely distributed between moderate and high altitudes in the Andes from western Venezuela into central Bolivia. It is easily recognized by the usually repent rhizome; long erect ramicauls with a sheath above the middle as well as one below the middle; and one or two long, densely flowered racemes of yellow to green flowers. The very narrow petals, as long as the sepals, protrude from either side. The lip is three-lobed with incurved lateral lobes that vary in length and width.

Lindley described this species three times in his *Folia Orchidacea Pleurothallis* in 1859. Although preceded in his publication by *P. cyclochila*, *P. antennifera* is retained here because of common usage.

Pleurothallis aporosis Luer, Selbyana 5: 160, 1979.

Ety.: From the Greek *aporosis*, "without a callus," referring to the labellum.

Plant medium in size to large, terrestrial, caespitose; roots coarse. Ramicauls stout, erect, 20-50 cm long, with a close, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, slightly acuminate, 10-17 cm long, 3-3.5 cm wide, cuneate below to a narrowly rounded, sessile base. **Inflorescence** 1 to 3 short, erect, lax, 1- or 2-flowered racemes, ca. 3 cm long including the peduncle ca. 2 cm long, produced from a spathe ca. 1 cm long at the base of the leaf; floral bracts infundibular, 5-10 mm long; pedicels 4-20 mm long; ovary 5 mm long; flowers non-resupinate; **sepals** light orange-brown, glabrous, the middle sepal narrowly ovate, acute, 12 mm long, 5 mm wide, 3-veined, the lateral sepals completely connate into a shallowly concave, ovate, subacute to obtuse synsepal, 12 mm long, 8 mm wide, 4-veined; **petals** red-brown, oblong, acute, 9 mm long, 2 mm wide; **lip** red-brown, suborbicular, slightly deflexed above the middle, 4 mm long, 3.5 mm wide, with the apex broadly rounded, minutely denticulate-erose, minutely apiculate, the basal lobes broadly rounded, suberect, flanking the column, the disc shallowly concave, with a glenion above the base, the subtruncate, connected to the obsolescent column-foot; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Azuay**: terrestrial in semi-arid, scrubby vegetation, ca. 80 km south of south Cuenca, alt. 3000 m, 17 July 1977, *C. Luer, J. Luer & G. Luer 1730* (Holotype: SEL).

This species is apparently confined to the dense, scrubby hillsides of southern Ecuador where it grows terrestrially. Probably because of the unlikely habitat, the species has not been collected before or after the collection cited above. It is characterized by the tall habit, narrowly elliptical leaves, and a few, erect, single flowers or short, 2-flowered racemes of brown, non-resupinate flowers. The lip is broadly rounded, minutely denticulate, and with a featureless disc save for a basal glenion.

Pleurothallis bicochlearis Luer, Orquideología 21: 118, 1999.

Ety.: From the Latin *bicochlearis*, "with two shells," referring to the labellum.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, compressed above, 10-25 cm long, with a tubular sheath from near the middle, and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical-ovate, acute, 7-13 cm long, 2.5-5 cm wide, the base broadly cuneate to rounded, sessile. **Inflorescence** 1-2 erect, congested, many-flowered racemes, 15-20 cm long including the peduncle 2-5 cm long, subtended by a spathe 1-1.5 cm long at the base of the leaf; floral bracts tubular, 4 mm long; pedicels 3 mm long; ovary 2 mm long; **sepals** translucent yellow, glabrous, the dorsal sepal ovate, acute, 7 mm long, 3 mm wide, 3-veined, the lateral sepals completely connate into an ovoid, deeply concave, subacute synsepal, 7 mm long, 5 mm wide unexpanded, 2 mm deep, 6-veined; **petals** narrowly linear, slightly thickened toward the subacute apex, 7 mm long, 0.5 mm wide, 3-veined; **lip** trilobed, 1 mm long, 2.5 mm wide across the lateral lobes, with the middle lobe broadly rounded, with the lateral lobes incurved, broadly rounded, concave, the base truncate, abruptly reflexed, attached to the base of the column; **column** terete, 0.5 mm long, footless, the anther and the stigma apical.

COLOMBIA: **Chocó**: Munic. of San José del Palmar, Cerro del Torrá, between heliport and mesa, alt. 2000-2500 m, 10 Aug. 1988, *P. Silverstone-Sopkin, N. Paz, R. T. González, J. E. Ramos, L. H. Ramos & A. Henao 4282* (Holotype: CUVC; Isotype: MO), C. Luer illustr. 16337; same area, above the heliport, alt. 1900 m, 7-8 Jan. 1984, *P. Silverstone-Sopkin, N. Paz, A. Duque & H. Bayona 1613, 1628* (CUVC).

This species, apparently endemic on the Cerro del Torrá in the Western Cordillera, is deceptively similar to the frequent *P. antennifera*. Instead of a distinct rhizome between ramicauls, the plants are densely caespitose. The ramicauls become compressed above the middle, sharply so as the leaf is approached. The flowers are similar, with similar, slender, semiterete petals, but in *bicochlearis*, the petals become slightly thickened toward the tip. The lateral lobes of the lip are much larger and concave.

Pleurothallis bicruris Lindl., Folia Orchid. *Pleurothallis* 8, 1859.

Ety.: From the Latin *bicruris*, "two-legged," in allusion to the deeply forked lip.

Syn.: *Humboldtia bicruris* (Lindl.) Kuntze, Rev. Gen. Pl. 667, 1891.

Syn.: *Pleurothallis diploglossa* Schltr., Repert. Spec. Nov. Regni Veg. 14: 129, 1915.
Ety.: From the Greek *diploglossa*, "two-tongued," in allusion to the deeply forked lip.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls relatively slender, erect, 15-33 cm long, with a close, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical, obtuse, shortly acuminate, 6-15 cm long, 3-7 cm wide, rounded and sessile at the base. **Inflorescence** 1 to 3 loose, flexuous, dangling, several-flowered racemes, 10-16 cm long including the peduncle 3-5 cm long, produced from a spathe ca. 1 cm long at the base of the leaf; floral bracts tubular, 5-8 mm long; pedicels 5-10 mm long; ovary 6-7 mm long; **sepals** translucent, suffused, mottled and spotted with purple, glabrous, the middle sepal ovate, acute, acuminate, 15-23 mm long, 5-10 mm wide, 3-veined, the lateral sepals completely connate into a concave, acute synsepal, 15-23 mm long, 9-12 mm wide unexpanded, 6-veined; **petals** mottled with purple, glabrous, narrowly elliptical-oblong, acute, long-acuminate, 16-22 mm long, 2.5-3 mm wide, 3-veined; **lip** yellow, trilobed, forked into parallel, narrowly linear, acute, lateral lobes, each lobe 6-8 mm long, 0.75-1 mm wide, the base 1 mm long, 1 mm broad, with the middle lobe acutely deflexed, rounded, 0.5 mm long, the base truncate, connected to the base of a thick, obsolescent column-foot; **column** red, stout, terete, 2 mm long, the anther, rostellum and stigma apical.

ECUADOR: **Pichincha**: forests of the Andes, alt. 10,000 ft, *W. Jameson 72* (Holotype: W); "Quito," alt. 9,000 ft., *Karsten s.n.* (AMES); between San Juan and Chiriboga, alt. 2500 m, 6 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 3870* (SEL); San Juan, alt. 2900 m, Oct. 1983, *A. Hirtz 1312, 1327* (MO); La Liberia, alt. 2700 m, Nov. 1983, *A. Hirtz 1408* (MO); west of Calacalí and La Liberia, alt. 2500 m, 4 Apr. 1985, *C. Luer, J. Luer, A. Hirtz, C. Dodson & P. Dodson 11053* (MO); west flank of Volcán Iliniza, Cerro Azul, alt 2800 m, *C. Luer, J. Luer & A. Hirtz 12469* (MO). **Carchi**: between Tulcán and Maldonado, alt. 3200 m, 22 May 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 6253* (AAU); same area, alt. 3200 m, Nov. 1991, *A. Hirtz, C. Head, M. Webb & L. Winn 5635* (MO). **Imbabura**: between Otavalo and Selva Alegre, alt. 2970 m, 20 Mar. 1986, *C.H. Dodson, A. & X. Hirtz 16408* (MO). **Napo**: Oyacachi, *L. Sodiro 8*, (holotype of *P. diploglossa* destroyed at B; lectotype here designated: BR; isolectotype: QPLS). **Imbabura**: Cerro Muenala, above Río Asabi, alt. 9,000 ft., 12 Mar. 1943, *W.B. Drew E-41* (AMES).

This unique species is distributed through the high, moist forests of northern Ecuador. It is distinguished by the relatively slender ramicaul; a sessile, elliptical leaf; and a loose, dangling raceme of comparatively large flowers. The flower faces upward with the concave synsepal uppermost and the pointed dorsal sepal and petals recurving. The lip is deeply three-lobed with the long lateral lobes protruding like a pair of tongs. The middle lobe is small and acutely deflexed beneath the thickened base of the lip.

Pleurothallis brachiata Luer, Selbyana 1: 230, 1975.

Ety.: From the Latin *brachiatus*, "with arms," referring to the lobes of the lip.

Plant medium in size to large, epiphytic, shortly repent to caespitose; roots slender. Ramicauls slender, ascending to erect, 15-35 cm long, with a tubular sheath above the middle, another below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 10-18 cm long, 1-2 cm wide, the base narrowly cuneate, sessile. **Inflorescence** 1-12, erect, arching, subcongested, subsecund, simultaneously many-flowered racemes, 10-15 cm long including the peduncle 2-3 cm long, from a spathe 1-1.5 cm long at the base of the leaf; floral bracts oblique, acute, 4-5 mm long; pedicels 5 mm long; ovary 3 mm long; **sepals** green or yellow, glabrous, subcarinate, the dorsal sepal ovate, acute, 5-6 mm long, 2-2.75 mm wide, 3-veined, the lateral sepals connate to the apex into a deeply concave, ovoid, acute, more or less acuminate synsepal, 5.5-6 mm long, 3.5-4.5 mm wide, 6-veined; **petals** green or yellow, thick, narrowly linear-oblong, acute, 5-6 mm long, 0.5 mm wide; **lip** green or yellow, 3-lobed, 1.5 mm long, 4 mm wide across the lobes expanded, the anterior lobe or apex ovate, subacute to obtuse, apiculate, the lateral lobes linear, incurved, each ca. 1 mm long, the lip acutely deflexed above the base, attached to the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Tungurahua**: terrestrial on road banks between Baños and Río Negro, alt. 1700 m, 10 Mar. 1975, *C. Luer & R. Kent 337* (Holotype: SEL); same area, cultivated 5 June 1975, *C. Luer & R. Kent 329* (SEL). **Pichincha**: between Quito and Santo Domingo, alt. 1400 m, 15 June 1967, *C. Dodson, N. Williams & R. Adams 3748* (SEL). *C. Luer 4455* (SEL).
Napo: between Baeza and Tena, alt. 2200 m, 29 May 1986, *C.H. Dodson & T. A. Dodson 16449* (K, MO); between Baeza and Tena, alt. 2050 m, 30 June 1985, *C.H. Dodson & A. Hirtz 15908* (MO); above Baeza, between Quito and Baeza, alt. 1840 m, 30 June 1986, *C.H. Dodson & T. A. Dodson 16534* (MO); Cordillera de Guacamayo, alt. ca. 1800 m, Mar. 1987, *A. Suarez 202* (MO). **Zamora-Chinchipe**: between Loja and Zamora, alt. ca. 1500 m, 5 Aug. 1975, *C. Luer, G. Luer & S. Wilhelm 402* (SEL); same area, alt. 2200 m, 26 July 1985, *C.H. Dodson & A. Embree 16102* (MO).
COLOMBIA: **Caldas**: Filo Cachirí: Quebrada Termales, east of Manizales, alt. 3165 m, 24 Nov. 1944, *H. St. John 20860* (AMES, COL).

This species, apparently limited to the eastern slopes of the Andes of Ecuador, is closely allied to *P. antennifera*. The former is distinguished by a very shortly repent rhizome; long, slender ramicauls with long, narrow leaves; and several arching racemes of small, greenish flowers. As in *P. antennifera*, long, narrow petals protrude from either side of the flower, and the lip is three-lobed with the lateral lobes filiform and incurved.

Pleurothallis cymbisepala Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 45, 1924.

Ety.: From the Latin *cymbisepala*, "with boat-like sepal," referring to the synsepal.

Plant medium in size to large, epiphytic, shortly repent to caespitose; roots slender. Ramicauls slender, erect, 7-30 cm long, with a tubular sheath near the middle, and 2-3 sheaths at the base. **Leaf** erect, coriaceous, elliptical-ovate, acute, 5-16 cm long, 2-5 cm wide, the base broadly cuneate to rounded, sessile. **Inflorescence** 1-3, erect, subdense, distichous, simultaneously many-flowered racemes, 7-15 cm long including the peduncle 2-3 cm long, from a spathe 1-1.5 cm long; floral bracts oblique, acute, 3-4 mm long; pedicel 5-6 mm long; ovary 2-4 mm long; **sepals** yellow-green to purple or brown, glabrous, subcarinate, the dorsal sepal elliptical-ovate, acute, 4-7 mm long, 2-3 mm wide, 3-veined, the lateral sepals connate to the apex into a deeply concave, cymbiform, acute, more or less acuminate synsepal, 3.5-7 mm long, 2.75-5 mm wide, 6-veined; **petals** thick, narrowly linear-oblong, acute, 3-6.5 mm long, 0.5-0.9 mm wide; **lip** broadly ovate-cordate, 1.2-2 mm long, 1.5-2.5 mm wide, the apex broadly obtuse or rounded, apiculate, with obtuse basal angles, the disc shallowly concave, acutely deflexed above the base, attached to the base of the column; **column** stout, terete, 1 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

COLOMBIA: *Nariño*: Laguna near Pasto, alt. 3000 m, Feb. 1922, *W. Hopp 175* (Holotype destroyed at B); same area, between La Cocha and Sibundoy, alt. 2700 m, 29 July 1978, *C. Luer, J. Luer & R. Escobar 3078* (Neotype of *P. cymbisepala* here designated: K; Isoneotype: SEL).
ECUADOR: **Zamora-Chinchipe**: military road east of Yangana, alt. 2650 m, 4 Mar. 1982, *C. Luer, J. Luer & A. Hirtz 7147* (SEL).

This species is apparently uncommon. As far as I know, it was discovered only once again near the type-locality in southern Colombia, and once in southern Ecuador. Although morphologically similar, the flowers of the Ecuadorian collection are twice as large as those from southern Colombia. The species is characterized by a narrowly ovate leaf borne by a slender ramicaul, and a longer subdense raceme. Similar to *P. antennifera*, the synsepal is concave and the narrowly linear petals spread from the flower. The lip is broadly ovate and cordate at the base which is acutely deflexed.

Pleurothallis demissa Luer & Vásquez, Phytologia 49: 203, 1981.

Ety.: From the Latin *demissus*, "drooping, weak" referring to the raceme.

Plant medium in size to large, epiphytic to terrestrial, shortly repent to caespitose; roots slender. Ramicauls very slender, erect to suberect, 18-33 cm long, with a close, tubular sheath near the middle, and 2-3 sheaths at the base. **Leaf** suberect to spreading, thinly coriaceous, elliptical, acute, acuminate, 10-23 cm long, 1.5-3.8 cm wide, the base cuneate, sessile. **Inflorescence** 1-2, flaccid, pendent, subdense, secund, simultaneously many-flowered racemes, 20-25 cm long including the peduncle 2-3 cm long, from a spathe 1-1.5 cm long at the base of the leaf; floral bracts tubular, 3-5 mm long; pedicels 3-4

mm long; ovary 3 mm long; **sepals** translucent rose, glabrous, the middle sepal ovate, acute, concave, 5.5-6.5 mm long, 3 mm wide, 3-veined, the lateral sepals connate to the apex into an ovate, concave, acute synsepal, 5-6.5 mm long, 3.5 mm wide, 4-veined; **petals** rose, narrowly linear, acute, thickened toward the apex, 5.5-6 mm long, 0.5 mm wide; **lip** light green, transversely triangular expanded, 1.75 mm long, 4 mm wide, the apex obtuse, shortly acuminate, incurved, with the basal angles obtuse, flanking the column, the base shortly deflexed, attached to the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

BOLIVIA: *La Paz*: Nor Yungas, on wet road embankment southwest of Coroico, alt. 2450 m, 4 Feb. 1980, *C. Luer, J. Luer, R. Vásquez & R. Lara 5108* (Holotype: SEL). *Cochabamba*: Chapare, along road to Tablas, alt. 2600 m, *C. Luer, J. Luer & R. Vásques 5183* (SEL).

This species occurs uncommonly on the northern slopes of the Andes of central Bolivia. It is characterized by a long, very slender ramicaul; a long, narrow leaf; and a long, drooping raceme. The middle sepal and synsepal are acute; the petals are narrowly linear and thick; and the lip is transversely "V-shaped" expanded.

Pleurothallis eccentrica Luer & Hirtz, Lindleyana 3: 140, 1988.

Ety.: From the Latin *eccentricus*, "different, eccentric," referring to the inconstant morphology of the base of the leaf and of the inflorescence.

Plant medium-sized to large, terrestrial to epiphytic, caespitose; roots slender, densely fasciculate. Ramicauls slender, erect, 5-18 cm long, with close, tubular sheaths above the base, sometimes proliferating from the site of the inflorescence. **Leaf** coriaceous, erect, sessile to petiolate, narrowly ovate, 5-11.5 cm long, 1-3 cm wide, the apex acute, lightly acuminate, the base cuneate without a petiole, or cuneate into a petiole up to 6 mm long. **Inflorescence** a solitary flower or a loose, 2-flowered raceme, borne by a slender peduncle 3-5 cm long, from a reclining spathe 5-10 mm long, at the base of the leaf or laterally from the ramicaul 1 mm below the abscission layer; floral bract 5 mm long; pedicel 6-8 mm long; ovary 5-8 mm long; **sepals** yellow, the dorsal sepal narrowly ovate, acute, convex, 12 mm long, 5 mm wide 3-veined, the lateral sepals connate completely into an ovoid, acute, deeply concave synsepal, 11 mm long, 12 mm wide expanded, 6-veined; **petals** red, linear, acute, 12 mm long, 1 mm wide, 3-veined, thickened near the apex; **lip** yellow, three-lobed, 4.5 mm long, 6.5 mm wide across the lateral lobes, the middle lobe broadly ovate, subacute, the lateral lobes transversely elliptical to suborbicular, convex, the base deflexed below a small callus, hinged to the base of the column; **column** cylindrical, 2 mm long, the anther and single-lobed stigma apical, the foot rudimentary.

ECUADOR: **Morona-Santiago**: terrestrial on a road cut between Limón and Gualaceo, alt. 2200 m, 8 Feb. 1987, *C. Luer, J. Luer, & A. Hirtz 12725* (Holotype: MO); epiphytic in cloud forest between Limón and Gualaceo, alt. 2200 m, 8 Feb. 1987, *C. Luer, J. Luer, & A. Hirtz 12722* (MO).

Pleurothallis eccentrica has been found colonizing a damp road embankment, as well as growing in trees in the same locality. The base of the mature, narrowly ovate leaf varies from cuneate without a petiole to indistinctly or distinctly petiolate. Smaller leaves are more likely to be petiolate than larger leaves. Either may bear a long-pedunculate inflorescence. The inflorescence is either single-flowered, or distantly and successively two-flowered. The petals are narrowly linear. The lip is distinctly three-lobed with the lateral lobes convex and broadly rounded without a callus.

Pleurothallis eidos Luer, Selbyana 5: 163, 1979.

Ety.: From the Greek *eidos*, "a sort, or kind," in allusion to the species being another among others.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls slender, 15-30 cm long, with a tubular sheath below the middle, and 2-3 sheaths at the base. **Leaf** suberect, thinly coriaceous, ovate, acute, slightly acuminate, 10-16 cm long, 6-8 cm wide, the base cordate, sessile. **Inflorescence** 1-2, erect, subcongested, distichous, simultaneously many-flowered racemes, 18-25 cm long including the peduncle 5-6 cm long, from a spathe 1-1.5 cm long at the base of the leaf; floral bracts tubular, 3 mm long; pedicels 4 mm long; ovary 2 mm long; **sepals** translucent yellow, glabrous, subcarinate, the dorsal sepal ovate, acute, acuminate, concave, 6 mm long, 3.25 mm wide, 3-veined, the lateral sepals connate to the apex into a deeply concave, ovoid, acute, acuminate synsepal, 6 mm long, 6 mm wide expanded, 6-veined; **petals** yellow, narrowly ovate, acute, 6.5 mm long, 1.25 mm wide, 3-veined; **lip** yellow, suborbicular, obscurely 3-lobed, 4.5 mm long, 4 mm wide, the apex rounded, concave, apiculate, the lateral lobes small, rounded, near the middle, the base subtruncate, shallowly reflexed, firmly attached to the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Carchi**: forest above Maldonado, alt. 2000-2500 m, 25 Aug. 1978, *C. Luer J. Luer & A. Hirtz 3367* (Holotype: SEL).

This species is apparently rare, known only from one collection in an area that has been visited by numerous collectors since the road was built. It grows in company with the superficially similar *P. penduliflora*, which is locally common in this area. Both species produce long racemes from a large cordate-ovate leaf. It is distinguished from the latter by broader petals, and a concave lip with very short, obtuse lateral lobes.

Pleurothallis genychila Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 74, 1921.

Ety.: From the Greek *genychilos*, "lip bend like a knee," referring to the geniculate lip.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls slender, 15-30 cm long, with a tubular sheath below the middle, and another 2-3 sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, slightly acuminate, 10-18 cm long, 3-4 cm wide, the base cuneate, sessile. **Inflorescence** 1-5 erect, loose, secund, simultaneously many-flowered racemes, 20 cm long including the peduncle 5 cm long, from a spathe 1-1.5 cm long at the base of the leaf; floral bracts tubular, 4-5 mm long; pedicels 5 mm long; ovary 5 mm long; **sepals** translucent yellow, more or less suffused with rose, glabrous, subcarinate, the dorsal sepal obovate, acute, 8 mm long, 3.5 mm wide, 3-veined, the lateral sepals connate to the apex into a deeply concave, ovoid, acute, acuminate synsepal, 8 mm long, 5 mm wide, 6-veined; **petals** yellow-green, narrowly linear, acute, 8 mm long, 0.5 mm wide, 1-veined; **lip** yellow-green, deeply 3-lobed, the middle lobe ovate, obtuse, minutely denticulate, 2 mm long, 1.3 mm wide, plus an apiculum 1 mm long, the lateral lobes erect, obliquely rounded, 2 mm long 1.75 mm wide, 3.75 mm wide across the lateral lobes expanded, the base subtruncate, shallowly reflexed (shortly geniculate), attached to the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

PERU: **Junín**: Tarma, mountains of Yanenga, alt. 2300-2400 m, Jan. 1903, *A. Weberbauer 2135* (Holotype destroyed at B).
ECUADOR: **Napo**: between Papallacta and Baeza, alt. 2800 m, 22 Aug. 1978, *C. Luer, J. Luer & A. Hirtz 3429* (Neotype of *P. genychila* here designated: SEL); between Papallacta and Baeza, alt. 2850 m, *C.H. Dodson, A. Hirtz, W. & M. Thurston 14263* (MO); Cerro Sumaco, alt. 3100-3300 m, 27 Apr. 1979, *B. Løjtnant & U. Molau 12912* (AAU, GB).
COLOMBIA: **Putomayo**: Valley of Sibundoy, alt. 2700 m, 18 Apr. 1963, *M.L. Bristol 811* (AMES).

First described from Peru, this species is apparently rare but widely distributed from southern Colombia into northern Peru. It is characterized by an elliptical leaf and a longer, loosely flowered raceme of many flowers. The dorsal sepal and synsepal are acute; the petals are narrowly linear; and the lip is deeply three-lobed with the lateral lobes erect and rounded, as large as the apiculate middle lobe. Fortunately, Schlechter provided a good illustration, because the holotype was destroyed and no isotypes have been found.

Pleurothallis hippocrepica Luer & Escobar, Orquideología 16: 165, 1984.

Ety.: From the Latin *hippocrepicus*, "horse shoe-shaped," referring to the lip.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 20-32 cm long, with a tubular sheath below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, ovate, acute, shortly acuminate, 11-15 cm long, 5-8 cm wide, the base rounded, sessile. **Inflorescence** 1-3 erect, distichous, subdense, simultaneously many-flowered racemes, 20-25 cm long including the peduncle 8-9 cm long, from a spathe 2-3 cm long at the base of the leaf; floral bracts tubular, 4 mm long; pedicels 3 mm long; ovary 5 mm long; flowers non-resupinate, **sepals** yellow or yellow-green, glabrous, subcarinate, the middle sepal ovate, acute, 9-10 mm long, 6 mm wide, 3-veined, the lateral sepals connate to the apex into a deeply concave, ovoid, obtuse synsepal, 9 mm long, 7 mm wide, 10 mm wide expanded, 6-veined; **petals** brown, very narrowly triangular, acute, thickened, 6 mm long, 1 mm wide at the base; **lip** yellow, 3-lobed, 2 mm long, 5 mm wide across the lobes unexpanded, 9 mm wide expanded, the anterior lobe obtuse, acuminate, the lateral lobes incurved, narrowly oblong with the tips rounded, each ca. 4 mm long, the lip acutely deflexed above the base, attached to the base of the column; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

COLOMBIA: **Antioquia**: Jardín, Alto de Ventanas, alt. 2800 m, 25 May 1983, *R. Escobar, L. & J. Posada et al. 2704* (Holotype: SEL).
ECUADOR: **Loja**: Nudo de Sabanilla above Valladolid, alt. 2500 m, 24 Feb. 1988, *U. Molau & B. Eriksen 3186* (AAU, GB).

This uncommon species, known from isolated collections, is similar to *P. penduliflora*, but it differs in ovate leaves not cordate at the base; triangular petals; and a lip with long, incurved lobes. Both species are large with stout ramicauls; relatively large flowers are borne in distichous racemes that exceed the leaf.

Pleurothallis hjertingii Luer, Lindleyana 12: 48, 1997.

Ety.: Named in honor of J.P. Hjerting of Denmark, who collected this species.

Syn.: *Pleurothallis lindenii* Lindl. var. *longiracema* C.Schweinf., Bot. Mus. Leafl. 16: 53, 1953.

Ety.: From the Latin *longiracemus*, "with long racemes," alluding to the inflorescence.

Syn.: *Pleurothallis secunda* Poepp. & Endl. var. *longiracema* C.Schweinf., Bot. Mus. Leafl. 17: 41, 1955.

Plant large, epiphytic, scandent; roots slender. Ramicauls slender to stout, ascending to erect, prolific, up to 25 cm long below, 4-6 cm long above, with distant, tubular sheaths. **Leaf** erect, coriaceous, elliptical, acute, 7-11 cm long, 2-3 cm wide, the base cuneate, sessile. **Inflorescence** a solitary, erect, distantly several-flowered raceme, 10-20 cm long including the peduncle 5-10 cm long, subtended by a foliaceous spathe 1.5-3 cm long at the base of the leaf; floral bracts tubular, 8-10 mm long; pedicels 10-12 mm long; ovary 5 mm long; **sepals** glabrous, the dorsal sepal ovate, concave, acute, slightly acuminate, 11-12 mm long, 5 mm wide, 3-veined, the lateral sepals completely connate into an ovoid, deeply concave, acute synsepal, 12 mm long, 6 mm wide unexpanded, 6 mm deep, 6-veined; **petals** oblong, acute, 7-9 mm long, 1.75 mm wide, 3-veined; **lip** trilobed, 4-5 mm long, 7 mm wide across the expanded lateral lobes, with the middle lobe obtuse to round, with the lateral lobes broadly rounded, 2.5 mm long, 2 mm wide, the base truncate, abruptly and shortly reflexed, attached to the base of the column; **column** terete, 2 mm long, 1.5 mm broad, footless, the anther and the stigma apical.

PERU: **Cuzco**: Urubamba, Machu Picchu, alt. 2300 m, 29 Apr. 1953, *J. P. Hjerting & E. Petersen 1571* (Holotype: C), C. Luer illustr. 17257; Urubamba, Tuncapata, Sta. Rita, alt. 2800 m, *C. Vargas 2663* (holotype of var. *longiracema*: AMES), C. Luer illustr. 18950.

This species is very closely allied to Bolivian *P. saltatoria* and the widely distributed *P. penduliflora* from both of which it is distinguished most easily by the broader, three-veined petals. It is apparently endemic in the mountains of Cuzco around Machu Picchu, where it was first collected by Vargas. This specimen, however, was described as a variety of *P. secunda*.

Pleurothallis hjertingii is distinguished by the prolific habit; a large, foliaceous spathe; and a tall, distantly several-flowered raceme of comparatively large flowers. The synsepal is deeply concave, the petals are oblong and acute, and the lip is trilobed with the lobes basal and broadly rounded.

Pleurothallis imbaburae Luer & Hirtz, Lindleyana 11: 163, 1996.

Ety.: Named for the province of Imbabura where this species is apparently endemic.

Plant medium in size, epiphytic, caespitose; roots numerous, very slender. Ramicauls slender, erect, 11-16 cm long, with a close tubular sheath below the middle and 2 other sheaths at the base. **Leaf** erect, thinly coriaceous, ovate, acute, acuminate, long-apiculate, 5.5-8 cm long, 2.5-3 cm wide, the base rounded, sessile. **Inflorescence** an erect, flexible, subdense, distichous, simultaneously several-flowered raceme 5-7 cm long including the peduncle 2-3 cm long, from a slender spathe 1 cm long; floral bracts infundibular, 2.5 mm long; pedicels 2 mm long; ovary 1.5 mm long; **sepals** yellow-white, glabrous, the dorsal sepal elliptical, concave, subacute, 5 mm long, 3 mm wide unexpanded, 3-veined, the lateral sepals connate into an elliptical, concave, subacute synsepal 5 mm long, 2.5 mm wide unexpanded, 4-veined; **petals** yellow-white, oblong-obovate, acute, 4.5 mm long, 1 mm wide, 3-veined; **lip** yellow-white, ovoid-3-lobed, 2 mm long, 1.75 mm wide, the apex subacute with deflexed sides, with the margins erose, the basal lobes erect, rounded, the base thickened, subcordate, hinged to the column-foot; **column** terete, 1.5 mm long, the foot thick, 0.5 mm long, the anther, rostellum and stigma apical.

ECUADOR: **Imbabura**: epiphytic in forest southeast of Lita on the road to Santa Rosa de Cachaco, alt. 1300 m, 10 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15167* (Holotype: MO).
COLOMBIA: **Chocó**: San José del Palmar, Cerro del Torrá, above the heliport, alt. 1900 m, 7-8 Jan. 1984, *P.A. Silverstone, N. Paz, A. Duque & H. Bayona 1606, 1627* (CUVC, MO); Cerro del Torrá, Río Negro below the heliport, alt. 1950 m, 15 Aug. 1988, *J.E. Ramos, P.A. Silverstone, L.H. Ramos et al. 1223* (CUVC, MO), C. Luer illustr. 18467.

This species is distinguished by the slender ramicauls; thin ovate, sessile, leaves; and a subdense, several-flowered raceme of yellow-white flowers. The elliptical, concave dorsal sepal is similar to the synsepal. The petals are oblong and acute. The lip is most distinctive in the subsection: a subacute, anterior lobe with erose margins, and a pair of lamellae flanked by erect, rounded, lateral lobes.

Pleurothallis lenae Luer & Dalström, Lindleyana 11: 165, 1996.
Ety.: Named in honor of Lena Åmby Dalström, co-discoverer of this species.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 25-57 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** suberect, coriaceous, ovate, acute, 15-20 cm long, 9-12 cm wide, the base deeply cordate, sessile. **Inflorescence** a suberect, subdensely many-flowered raceme of simultaneous flowers, up to 33 cm long including the peduncle ca. 10 cm long, subtended by a spathe 2 cm long, at the base of the leaf; floral bracts infundibular, 3 mm long; pedicels 3 mm long; ovary 5 mm long; **sepals** yellow, glabrous, membranous, the dorsal sepal broadly ovate, obtuse, concave, 9.5 mm long, 7 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, scaphoid, obtuse synsepal, 10 mm long, 7 mm broad unexpanded, 6-veined; **petals** yellow, dotted with purple, glabrous, fleshy, narrowly ovate, acute, 10 mm long, 1.5 mm wide, 3-veined; **lip** yellow, dotted with purple, 5-lobed, 5 mm long and wide in greatest dimensions, the middle lobe broadly rounded, minutely apiculate, 2 mm long from the base to the apex, the anterior lobes oblong, obtuse, with revolute margins, the basal lobes triangular, flanking the column, the disc without callus, acutely deflexed upon itself above the base, the base inflexibly attached to the base of the column; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Pastaza**: epiphytic in wet forest north of Topo, along Río Zuñag, alt. 2100 m, 26 Feb. 1990, *S. Dalström & L. Dalström 1420* (Holotype: MO), C. Luer illustr. 14818; north of Topo, along Río Zuñag, alt. 2100 m, 26 Feb. 1990, *A. Hirtz et al. 4618* (MO).

This large member of the subsection is distinguished by the long, stout ramicauls; a large, cordate leaf; and a long, many-flowered inflorescence. The dorsal sepal is broadly ovate, the synsepal is deeply concave, the petals are narrowly ovate, and the lip is large and five-lobed, clasping the column. The lip is acutely deflexed upon itself above the base, so that the rounded middle lobe points backward. The margins of the lateral lobes are reflexed, the anterior portions aimed forward like tongs while the basal portions flank the column. It differs from *P. penduliflora* in having broader, 3-veined petals, and an acutely genuflexed lip.

Pleurothallis loejtnantii Luer, Lindleyana 11: 166, 1996.
Ety.: Named in honor of Bernt Løjtnant, co-discoverer of this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 8-12 cm long, with a thin, tubular sheath on lower third and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly ovate, acute, 5-6.5 cm long, 1-1.5 cm wide, the base cuneate, sessile. **Inflorescence** an erect, distichous, subdensely and simultaneously several-flowered raceme, up to 12 cm long including the peduncle 3-4 cm long, subtended by a spathe 8-11 mm long, at the base of the leaf; floral bracts infundibular, 2 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** purple, fleshy, glabrous, the dorsal sepal oblong, acute, 4 mm long, 1.5 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, scaphoid, obtuse synsepal, 4.5 mm long, 2.5 mm broad unexpanded; **petals** purple, glabrous, linear, 3.5 mm long, 0.3 mm wide, 0.5 mm wide at the swollen, subclavate tip; **lip** purple, geniculate, obscurely 3-lobed, 1.4 mm long, 1.8 mm wide, the lateral lobes broadly rounded, erect, the middle lobe being the concave isthmus with a short, incurved obtuse apex between the lateral lobes; the disc without callus, acutely deflexed upon itself near the middle, the base inflexibly attached to the base of the column; **column** stout, terete, 1 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Sucumbíos**: between El Carmelo and La Bonita, alt. 2800 m, 8 Apr. 1979, *B. Løjtnant, U. Molau & M. Madison 12022* (Holotype: AAU), C. Luer illustr. 17233.

This small member of the subsection is distinguished by the narrowly ovate leaves surpassed by a distichous raceme of several small purple flowers. The synsepal is deeply boat-shaped; the petals are narrowly linear with a thickened, subclavate, obtuse apex; and the lip is trilobed with broadly rounded lateral lobes and a small, concave middle lobe between, and deflexed upon the base.

Pleurothallis madsenii Luer, sp. nov.

Ety.: Named in honor of J. E. Madsen who collected this species.

Species haec *P. ramificanti* Luer affinis, sed floribus multiminoribus sepalis carnosis, petalis carnosis ad basim latioribus, et labello ovoideo-trilobato, lobis lateralibus brevioribusque latioribus differt.

Plant medium in size, epiphytic, caespitose below, prolific above; roots slender. Ramicauls slender, erect, apparently only once superposed, 12-16 cm long below, 4-5 cm long above, with 1-2 thin, tubular sheaths above and below the middle and another at the base. **Leaf** erect, coriaceous, narrowly ovate, acute, 5-5.5 cm long, 1-1.5 cm wide, the base sessile, cuneate. **Inflorescence** a subcongested, simultaneously many-flowered raceme, 5-6 cm long including the peduncle ca. 1 cm long, subtended by a spathe 10-12 mm long at the base of the leaf; floral bracts infundibular, 3 mm long; pedicels 8 mm long below to 2 mm long above; ovary 1 mm long; **sepals** fleshy, carinate, glabrous, the dorsal sepal ovate, acute, concave, 3.3 mm long, 1.5 mm wide, 3-veined, the lateral sepals completely connate into an ovate, concave, acute synsepal, 3.2 mm long, 1.75 mm wide unexpanded, 2-veined; **petals** thick, fleshy, terete, narrowly triangular, acute, 3 mm long, 0.6 mm wide at the base, 1-veined; **lip** thickly trilobed, 1 mm long, 1 mm wide, with the middle lobe broadly obtuse to round, shallowly concave, the lateral lobes antrorse, broadly triangular, obtuse, 0.5 mm long, the base broadly truncate, attached to the base of the column; **column** broad, terete, 2-3 mm long, footless, the anther and the stigma apical.

ECUADOR: **Loja**: Parqué Nacional Podocarpus, Cerro Toledo, alt. 2500-3400 m, 30 Oct. 1989, *J. E. Madsen 86309* (Holotype: AAU; Isotype: QCA), C. Luer illustr. 17232.

This species is known from a single collection from southern Ecuador. It is similar to the frequent, prolific and climbing *P. ramificans*, but it differs from the latter in having erect ramicauls with only one or two erect, superposed stems. The racemes are shorter and the flowers are much smaller and fleshy.

Pleurothallis manicosa Luer & Escobar, Orquideología 20: 66, 1966.

Ety: From the Latin *manicosus*, "full of sleeves," referring to the dilated sheaths of the ramicaul.

Plant large, epiphytic, caespitose; roots numerous, slender. Ramicauls stout, erect, 25-50 cm long, with a broad, dilated, tubular sheath near the middle and 2-3 other broad, dilated, overlapping sheaths at the base. **Leaf** erect, coriaceous, broadly cordate, obtuse, acuminate, 15-19 cm long including the basal lobes ca. 2 cm deep, 11-13 cm wide, base sessile. **Inflorescence** a fascicle of several (to 12), erect, simultaneous, simultaneously many-flowered racemes, 15-20 cm long including the peduncle 4-5 cm long, produced from a broad, foliaceous spathe 3-3.5 cm long at the base of the leaf; floral bracts slender, 6-7 mm long; pedicels 8-9 mm long; ovary 3 mm long; **sepals** red-purple, glabrous, the dorsal sepal ovate, concave, acute, 7 mm long, 3 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, cymbiform, acute synsepal, 6.5 mm long, 4 mm wide unexpanded, 6-veined; **petals** red-purple, glabrous, narrowly linear, acute, 5 mm long, 0.6 mm wide, 3-veined at the base; **lip** red-purple, trilobed, 1-1.5 mm long, 5 mm wide expanded across the lobes, with the apical lobe triangular, acute, acuminate, the lateral lobes broadly falcate, incurved, encircling the column, the disc featureless, the base shortly acutely deflexed, connected to the obsolescent column-foot; **column** stout, terete, 1 mm long, the foot thick, obsolescent, the anther, rostellum and stigma apical.

COLOMBIA: **Valle del Cauca**: Balkanes, alt. ca. 1800 m, collected by E. Valencia, July 1989, flowered in cultivation at Colomborquídeas, 23 May 1995, *C. Luer 17554* (Holotype: JAUM; Isotype: MO). **Valle del Cauca**: El Cairo, Cerro del Inglés, Serrania de los Paraguas, alt. 2300 m, 3 Jan. 1987, *P.A. Silverstone, N. Paz, R.T. Gonzáles, T. Cabrero, D. Garcés & A. Henao 2918* (CUVC, MO); Finca Zingara, between Cali and Buenaventura, alt. 1900 m, 13 Nov. 1994, *J. Giraldo G. & L. Olver A. 537* (MO, TULV).

Although vegetatively this species is reminiscent of subgenus *Crocodeilanthe* because of the greatly dilated sheathes and large, foliaceous spathe, the flowers of this species are typical of those of section *Pleurothallis*. Several simultaneous racemes of many flowers are produced in a fascicle. The synsepal is concave within which the three-lobed lip is held. The middle lobe is acuminate, and the lateral lobes are broadly falcate.

Pleurothallis melanosticta Luer, Lindleyana 11: 170, 1996.

Ety.: From the Greek *melanosticta*, "with black spots," referring to the sepals.

Plant medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls slender, erect, 11-16 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical, acute, 12-15 cm long, 4.5-6 cm wide, the base cuneate into the subsessile base. **Inflorescence** an erect, densely many-flowered raceme of simultaneous flowers, up to 20 cm long including the peduncle ca. 7 cm long, subtended by a spathe 1.5 cm long, at the base of the leaf; floral bracts 3 mm long; pedicels 2 mm long; ovary 2.5 mm long; **sepals** greenish white with fairly large black spots, glabrous, membranous, the dorsal sepal oblong-ovate, obtuse, 5 mm long, 2.25 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, scaphoid, obtuse synsepal, 5 mm long, 3 mm broad unexpanded, 6-veined; **petals** white, glabrous, spathulate, obtuse, 3.25 mm long, 0.5 mm wide, the apex 1 mm wide with thickened margins; **lip** greenish white, three-lobed, 2 mm long, 1.75 mm wide unexpanded, the middle lobe deeply concave, broadly rounded, minutely apiculate, the sides or lateral lobes erect and broadly rounded, the margins thick and minutely verrucose, the disc without callus, the base acutely deflexed, inflexibly attached to the base of the column; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, epiphytic in forest along a river east of Mayaicu, alt. 1070 m, 20 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13522* (Holotype: MO; Isotype: QCNE).

This most attractive species is distinguished by the elliptical leaf and a long, many-flowered inflorescence of small greenish white flowers conspicuously spotted with black. The dorsal sepal is oblong and obtuse, the synsepal is deeply concave, and the conspicuous white petals are spathulate. The lip is deeply cup-shaped and apiculate with erect, rounded sides. The margins of the sides, or lateral lobes, are thickened with a recessed, verruculose edge.

Pleurothallis nasiterna Luer, Phytologia 49: 212, 1981.

Ety.: From the Latin *nasiterna*, "a watering-pot with a large spout," in allusion to the synsepal.

Plant large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 13-40 cm long, with a closely fitting tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical to ovate, obtuse, acuminate, 9-15 cm long, 2.5-8 cm wide, the base sessile. **Inflorescence** 1-3 erect to arching, simultaneously many-flowered racemes, 10-24 cm long including the peduncle ca. 5 cm long, produced from a reclining spathe 12-22 mm long at the base of the leaf; floral bracts 3-4 mm long; pedicels 3-4 mm long; ovary 3 mm long; **sepals** yellow-green, glabrous, fleshy, the dorsal sepal ovate, concave, acute, 5 mm long, 3 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, ovoid synsepal with a narrowly acute apex, 4.5 mm long, 5 mm wide expanded, 6-veined; **petals** yellow-green, glabrous, thick, linear-oblong, acute, 4.5 mm long, 1 mm wide, faintly 3-veined; **lip** yellow-green, trilobed, 2.5 mm long, 3 mm wide across the lobes, with the apical lobe ovate, obtuse, acuminate-apiculate, the lateral lobes oblong, rounded on the ends, flanking the column, the disc faintly bicallous, the base acutely deflexed, connected to an obsolescent column-foot; **column** stout, terete, 1 mm long, the foot thick, obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Sucumbíos**: cloud forest southeast of El Carmelo, alt. 2700 m, 17 May 1981, *C. Luer, J. Luer & A. Hirtz 6287* (Holotype: SEL); between El Carmelo and La Bonita, alt. ca. 2350 m, 8 Apr. 1979, *B. Løjtnant, U. Molau & M. Madison 11915, 12019, 12020* (AAU, GB); same area, alt. 2600 m. 13 Apr. 1979, *B. Løjtnant, U. Molau & M. Madison 12326, 12348* (AAU, GB); south of Santa Barbara, alt. 2700 m, 20 Mar. 1991, *C. Luer, J. Luer, A. Hirtz & J. Del Hierro 15201* (MO). **Carchi**: Bolívar, above La Paz, north road, alt. 3100 m, 18 Feb. 1998, *C. Luer, J. Luer, A. Hirtz & J. Del Hierro 18737* (MO). **Napo**: Paso de Guamani, Río Chalpi, between Papallacta and Baeza, alt. ca. 2800 m, 6 May 1967, *B. Sparre 15895* (S).
COLOMBIA: **Nariño**: Alto de Tabano, *E. André s.n.* (K).

This species occurs not uncommonly in the mountains of northern Ecuador and southernmost Colombia. It is characterized by the large habit, sessile leaves, and a few long racemes of small, yellow-green flowers. Most distinctive is the deeply concave, obtuse synsepal with the apex contracted into a narrow, spout-like tip. The lip is three-lobed with the middle lobe obtuse but acuminate into an apiculum.

Pleurothallis parviflora Luer, Phytologia 46: 369, 1980.

Ety.: From the Latin *parviflorus*, "small-flowered," referring to the size of the flowers.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls very slender, erect, 12-23 cm long, with a close, tubular sheath below the middle, and 2-3 sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, acuminate, 6-11 cm long, 2-4 cm wide, the base cuneate, sessile. **Inflorescence** 1-4 erect, dense, simultaneously many-flowered racemes, 8-16 cm long including the peduncle 4-5 cm long, from a spathe 1.5-2 cm long at the base of the leaf; floral bracts tubular, 1.5 mm long; pedicels 1.5 mm long; ovary 1-1.5 mm long; **sepals** translucent rose, glabrous, the middle sepal ovate, obtuse, 2.8-3 mm long, 1.75-2 mm wide, 3-veined, the lateral sepals connate to the apex into an ovate, deeply concave, obtuse synsepal, 2.8-3 mm long, 2.5 mm wide, 6-veined; **petals** rose, narrowly linear, acute, 2.25-2.5 mm long, 0.3 mm wide; **lip** green, transversely "V-shaped," expanded, 1.3 mm long, 2.5-3 mm wide expanded, the apex obtuse, shortly acuminate, incurved, with the basal angles oblong, obtuse, flanking the column, the base shortly deflexed, attached to the base of the column; **column** stout, terete, 1 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Napo**: below Papallacta, alt. 2100 m, 29 Oct. 1979, *C. Luer, J. Luer & A. Hirtz 4463* (Holotype: SEL); above Baeza toward Quito, alt. 1800 m, 17 Nov. 1985, *C.H. Dodson, P. Dodson & A. Embree 16221A* (MO). **Sucumbíos**: below La Bonita, alt. 2400 m, *A. Hirtz 4994* (MO), C. Luer illustr. 15287.

This species, apparently endemic on the eastern slopes of the Andes of Ecuador, is characterized by slender ramicauls; narrow, acute leaves; and a longer raceme of numerous, tiny flowers. The sepals are obtuse and mostly less than three millimeters long; the petals are narrow and acute; and the three-lobed lip is proportionately large, when expanded, about as wide as the sepals are long.

Pleurothallis penduliflora Kraenzl., Repert. Spec. Nov. Regni Veg. 1: 177, 1905.

Ety.: From the Latin *penduliflorus*, "with pendent flowers," referring to the raceme.

Syn.: *Pleurothallis semipellucida* var. *grandiflora* C.Schweinf., Bot. Mus. Leafl. 15: 102, 1951.
Ety.: From the Latin *grandiflorus*, "large-flowered," referring to the flowers.

Syn.: *Pleurothallis diffusa* var. *grandiflora* (C.Schweinf.) C.Schweinf., Bot. Mus. Leafl. 17: 212, 1956.

Syn.: *Pleurothallis aves-seriales* Luer & Escobar, Orquideología 14: 134, 1981.
Ety.: From the Latin *aves seriales*, "birds in a row,"in allusion to the evenly spaced flowers.

Plant large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 20-60 cm long, with a tubular sheath below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, cordate-ovate, subacute, shortly acuminate, 13-23 cm long, 10-14 cm wide, the base sessile, deeply cordate. **Inflorescence** 1-5 erect to arching or pendent, subcongested, distichous, simultaneously many-flowered racemes, 18-30 cm long including the peduncle 5-8 cm long, from a spathe 2-3 cm long at the base of the leaf; floral bracts tubular, 3-6 mm long; pedicel 3-4 mm long; ovary 3-4 mm long; flowers non-resupinate, **sepals** purple, yellow, yellow-green or tan, sometimes veined in brown, glabrous, subcarinate, the middle sepal elliptical-ovate, subacute, 8-10.5 mm long, 4-7 mm wide, 3-veined, the lateral sepals connate to the apex into a deeply concave, elliptical, subacute synsepal, 8-11.5 mm long, 7-9 mm wide, 6-veined; **petals** purple or yellow, terete, narrowly linear-oblong, acute, 7-11 mm long, 0.75-1 mm wide; **lip** purple, yellow or green, 3-lobed, 3 mm long, 4-6 mm wide across the lobes expanded, the anterior lobe suborbicular, shortly apiculate, the lateral lobes incurved, broadly subfalcate, each ca. 1.5 mm long, the lip acutely deflexed above the base, attached to the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

PERU: **Junín**: Tarma: mountains of Yanenga, alt. 2300-2400 m, *A. Weberbauer 2118* (Holotype destroyed at B, photo of type from B at AMES). **Cuzco**: Convención, alturas de Pintobamba, alt. 2700 m, *C. Vargas 3243* (holotype of var. *grandiflora*: AMES; isotype: CUZ; designated here as Neotype of *P. penduliflora*: AMES; Isoneotype: CUZ).
ECUADOR: **Carchi**: east of Maldonado, alt. 2230 m, 17 Sept. 1979, *A. Gentry & G. Shupp 26635* (AAU, K, MO, SEL); between Tulcán and Maldonado, alt. 2050 m, 2 Apr. 1984, *C. Luer, S. Dalström & T. Hõijer 9926* (MO); between Maldonado and Chical, alt, 2200 m, May 1992, *A. Hirtz 5768* (MO); Páramo del Angel between Tulcán and Maldonado, alt. 2600 m, 1 Aug. 1985. *C.H. Dodson & A. Embree 16138, 16142* (AMES, K, MO); above Maldonado, alt. 2500 m, *A. Hirtz 6228* (MO). **Tungurahua**: Tungurahua, alt. 2400 m, 30 Oct. 1879, *F.C. Lehmann 333* (W). **Morona-Santiago**: between Gualaceo

and Limón, alt. 1900-2000 m, 22 Mar. 1974, *G. Harling & L. Andersson 12717* (AMES, GB); between Sigsig and Chiguinda, alt. 2500 m, 11 Aug. 1990, *A. Hirtz 5062* (MO); above Campamento Guarumales, alt. 2000 m, 24 Mar. 1991, *C. Luer, J. Luer, A. Andreetta & L. Morocho 15237* (MO). **Loja**: military road east of Yangana, alt. 2500 m, 22 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10805* (MO); above Yangana, north of pass, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10868* (MO); north of Loja, new road, alt. 2700 m, 2 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12583* (MO). **Zamora-Chinchipe**: Quebrada Honda, alt. 1450 m, 14 Mar. 1986, *D. D'Alessandro 530* (MO).
COLOMBIA: **Antioquia**: Quebrada Guanacas between Carolina and Santa Rosa, alt. 2500 m, 27 Sept. 1884, *F.C. Lehmann CLXXXII* (K); Río Piedras, alt. 2200 m, 20 Sept. 1883, *F.C. Lehmann 3141* (K); near Yarumal, alt. 2000-2400 m, Nov. 1891, *F.C. Lehmann 7158* (K); between Medellín and El Retiro, alt. 2500 m, July 1946, *W.H. Hodge 6874* (COL, US); La Ceja, Mina de Cobre, alt. 2200 m, 11 Nov. 1973, *R. Escobar et al. 956* (holotype of *P. aves-seriales*: JAUM); cultivated by M. & O. Robledo at La Ceja, 3 Oct. 1977, *C. Luer 1893* (Clonotype: SEL); Cocomá, Quebrada El Viaho, alt. 1990 m, collected by J. Lopez, Sept. 1994, cultivated at Colomborquídeas, 10 June 1997, *R. Escobar 5521* (MO); between Urrao and Carmen de Atrato, alt. 2500 m, May 1995, cultivated at Colomborquídeas, 5 July 1996, *C. Luer 17954* (MO). **Valle del Cauca**: Cali, Farallones de Cali, alt. 2500 m, 4 Jan. 1977, *D. Hartman 623* (CUVC). **Narlño**: Río Putumayo near San Francisco, 7 Apr. 1958, *D.S. Correll Co494* (AMES); east of La Victoria, alt. 3000 m, 22 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2737* (SEL); above Ricaurte, near La Planada, alt. 1800 m, cultivated 25 Jan. 1987, *C. Luer 12484* (MO); Balkanes, alt. 1800-2000 m, collected by E. Valencia, July 1989, cultivated at Colomborquídeas, *R. Escobar 4065* (MO).

This large species is locally frequent in the Andes from central Colombia to central Peru. It is characterized by long, stout ramicauls; large, cordate leaves; and long, relatively large-flowered racemes of either yellow or purple flowers. The middle sepal and cucullate, uppermost synsepal are acute; the petals are narrowly linear; and the lip is three-lobed with the lobes broadly subfalcate.

Pleurothallis ptychophora Luer & Hirtz, Lindleyana 11: 180, 1996.

Ety.: From the Greek *ptychophoros*, "fold-bearing," referring to the deflexed apex of the lip.

Plant large, epiphytic, caespitose; roots numerous, slender. Ramicauls slender to stout, erect, 17-30 cm long, with a thin, tubular sheath near the middle and 2-3 others near and at the base. **Leaf** erect, coriaceous, broadly ovate, obtuse to subacute, shortly acuminate, 14-17 cm long, 7-12 cm wide, the base sessile, broadly rounded. **Inflorescence** racemose, 6-10 erect, congested, simultaneously many-flowered racemes, 15-30 cm long including the peduncle 4-5 cm long, subtended by a slender spathe 2-3 cm long at the base of the leaf; floral bracts 2 mm long; pedicels 2 mm long; ovary 1 mm long; **sepals** light yellow-green, glabrous, the dorsal sepal ovate, acute, 5 mm long, 2.25 mm wide, 3-veined, the lateral sepals completely connate into an ovate, concave, acute synsepal, 5 mm long, 3 mm wide unexpanded, 6-veined; **petals** yellow, terete, narrowly linear-subulate, acute, 3.25 mm long, 0.4 mm wide, 1-veined; **lip** yellow, trilobed, 1.5 mm wide, with the middle lobe round, apiculate, shallowly concave, acutely reflexed beneath and against the broad, flat disc between the lateral lobes, the lateral lobes oblong, obtuse, 1.6 mm long, 0.75 mm wide, the base attached to the base of the column; **column** greenish white, terete, 2-3 mm long, footless, the anther and the stigma apical.

ECUADOR: **Morona-Santiago**: between San Juan Bosco and Gualaquiza, alt. 1250 m, 27 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10982* (Holotype: MO); between Limón and Gualaceo, alt. 1900-2000 m, 27 Mar. 1974, *G. Harling & L. Andersson 12716* (AMES, GB).

This species is apparently endemic on the eastern slopes of the Andes of central Ecuador, where it has been found growing terrestrially on the road embankments. Superficially, it resembles *P. revoluta* with the fascicle of racemes of small flowers with protruding, narrowly linear petals. The distinctive lip is three-lobed with broad, obtuse lateral lobes protruding forward as in *P. revoluta*, but the lobes are extensions of a broad, flat disc that connects them beneath the column. The anterior margin is sharply reflexed into a round middle lobe against the back of the disc. The entire disc between the lateral lobes of *P. revoluta* is concave.

Pleurothallis pulvinaris Luer & Escobar, Orquideología 16: 176, 1984.

Ety.: From the Latin *pulvinaris*, "cushioned," in allusion to the callus on the labellum.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 16-25 cm long with a close tubular sheath below the middle and 2 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 9-16 cm long including a 1-1.5 cm long petiole, 1-3 cm wide, the base narrowly cuneate

into the slender petiole. **Inflorescence** 1-2 arching, simultaneously 2-flowered racemes (occasionally 1-flowered), 2-2.5 cm long including the peduncle ca. 1.5 cm long, from a spathe 1 cm long at the apex of the ramicaul; floral bract infundibular, 5-6 mm long; pedicel 7-8 mm long; ovary 5 mm long; flowers non-resupinate; **sepals** translucent pale green, with light purple spots, especially near the base, glabrous, the middle sepal narrowly ovate, acute, 10-12 mm long, 3.5-4 mm wide, 3-veined, the lateral sepals uppermost, connate into a concave, ovate, acute synsepal, 10-13 mm long, 5-6 mm wide unexpanded, 9 mm wide expanded; **petals** white, streaked and spotted with red, narrowly ovate, acute, attenuate, 10-12 mm long, 2 mm wide; **lip** white, transversely trilobed, 3 mm long, 8 mm wide across the lobes expanded, the apex round, minutely apiculate, the disc filling the center of the lip with a thick, rounded, convex, shallowly grooved callus, the lateral lobes erect, triangular, narrowly obtuse, with an elevated glenion above the base, attached to the base of the column; **column** stout, 2 mm long, footless.

COLOMBIA: **Antioquia**: Jardin, Alto de Ventanas, alt. 2800 m, 25 May 1983, *R. Escobar, L. & J. Posada et al. 2685* (Holotype: SEL; Isotype: JAUM), C. Luer illustr. 9145; Urrao, collected by G. Misas, cultivated at Colomborquídeas, 5 May 1993, *C. Luer 16648* (MO).

This species is apparently endemic in the Western Cordillera of Colombia. It is characterized by a narrowly elliptical, shortly petiolate leaf borne by a long, slender ramicaul. One or two short, drooping, simultaneously two-flowered racemes are borne a short distance below the abscission layer. The sepals and petals are acute and spotted with purple. The lip is transversely three-lobed with tall, erect, triangular, lateral lobes and a short, obtuse midlobe filled with a low, rounded, shallowly grooved callus.

Pleurothallis ramificans Luer, Phytologia 46: 371, 1980.

Ety.: From the Latin *ramificans*, "branching," referring to the prolific habit.

Plant medium to large, epiphytic, scandent, branching, up to 1 meter or more tall; roots slender. Ramicauls slender, ascending to erect, proliferating, up to 30 cm long below, 3-10 cm long above, with a tubular sheath below the middle and another at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 5-10 cm long, 1-3 cm wide, the base sessile, cuneate. **Inflorescence** racemose, 1-2 subcongested, simultaneously many-flowered racemes, 6-15 cm long including the peduncle 2-3 cm long, subtended by a spathe 1.5-2 mm long at the base of the leaf; floral bracts infundibular, 2.5 mm long; pedicels 3 mm long; ovary 2 mm long; **sepals** yellow, orange to purple, membranous, subcarinate, glabrous, the dorsal sepal ovate, acute, concave, 6 mm long, 3 mm wide, 3-veined, the lateral sepals completely connate into an ovate, acute, slightly acuminate synsepal, 6 mm long, 4 mm wide unexpanded, 4-veined, concave and inflated below the middle; **petals** colored as the sepals, terete, narrowly linear, acute, 5.5 mm long, 0.75 mm wide, 1-veined; **lip** transversely ovate-trilobed, 1.5 mm long, 2 mm wide, with the middle lobe broadly rounded, slightly convex, apiculate, the lateral lobes oblong, obtuse, each 1 mm long, the base broad, attached to the base of the column; **column** broad, terete, 2-3 mm long, footless, the anther and the stigma apical.

ECUADOR: **Imbabura**: cloud forest above Apuella, alt. 2500 m, 8 Feb. 1979, *C. Luer, J. Luer, A. Hirtz & R. Escobar 3920* (Holotype: SEL); Cayambe, south of Toldadas, alt. 10,650 ft., 15 July 1944, *I. L. Wiggins 10404* (AMES); Naranjito, east of Volcán Cayambe, alt. 10,000 ft., 4 Apr. 1944, *W.B. Drew E-195* (AMES): **Carchi**: between Tulcán and Maldonado, alt. 3150-3250 m, 17 May 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 5617* (AAU, AMES, K); same area, alt. 2900-3100 m, 26 Feb. 1974, *G. Harling & L. Andersson 12231* (GB); same area, 2 Mar. 1974, *G. Harling & L. Andersson 12404, 12414* (AMES, GB); same area, alt. 2000 m, 21 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2683* (SEL); between Playón de San Francisco and El Carmelo, alt. 3200 m, 12 Apr. 1979, *B. Løjtnant, U. Molau & M. Madison 12309* (AAU, GB); between Tulcán and Santa Bárbara, alt. 2700 m, 21 June 1983, *J. Bohlin & M. Bohlin 624* (GB); same area, alt. 2600-3200 m, July 1982, *C.H. Dodson & A. Embree 13053* (SEL); same area, alt. 3200 m, 7 July 1990, *C.H. Dodson, E. Hagsater, D. Rubio & N. Rivera 18407, 18440, 18450* (MO). **Pichincha**: above San José de Minas, alt. 2500 m, 24 Aug. 1978, *C. Luer, J. Luer & A. Hirtz 3335* (SEL). **Cotopaxi**: east of Salcedo, alt. 3100 m, 12 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4774* (SEL). **Napo**: eastnortheast of Cayambe, 2 Mar. 1974, *G. Harling & L. Andersson 12404, 12414* (GB); eastnortheast of Volcán Cayambe, alt. 10,700 ft., 12 Aug. 1961, *P. Cazalet & T. Pennington 5551* (AMES, K, US); between Papallacta and Baeza, alt. 2800-2900 m, 5 June 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 6857* (AAU, AMES); same area, alt. 2800 m, 28 Aug. 1978, *C. Luer, J. Luer & A. Hirtz 3435* (SEL); north of Baeza, alt. 1500 m, 10 Aug. 1978, *C. Luer, J. Luer & A. Hirtz 3222* (SEL); Cerro Sumaco, alt. 3100-3300 m, 27 Apr. 1979, *B. Løjtnant & U. Molau 12911* (AAU, GB); road construction, east of Salcedo, Río Anatenario, alt. 2800 m, 27 May 1979, *B. Løjtnant, A. & U. Molau 13813* (AAU, GB).
COLOMBIA: **Nariño**: Volcán de Pasto, alt. 2600-3000 m, *F.C. Lehmann 7159* (AMES, K); above

Laguna near Pasto, alt. 10,000 ft., 17 Oct. 1878, *F.C. Lehmann s.n.* (W); between Pasto and Mocoa, alt. 2700-2850 m, 26 July *H. García-Barriga, J.G. Hawkes, M. Villarreal 13034* (COL, US); same area, 27 July 1956, *A. Barclay & R.E. Schultes 240* (AMES); Alto del Tabano, above Pasto?, alt. 3200 m, 4 May 1876, *E. André 3018* (K); east of La Victoria, alt. 3000 m, 4 Nov. 1979, *C. Luer et al. 4649* (K, SEL). **Putumayo**: between La Cocha and Sibundoy, alt. 2700 m, 29 July, 3 Aug. 1978, *C. Luer et al. 3079, 3146* (SEL).

This species is frequent from southernmost Colombia to central Ecuador. It is a prolific, long-scandent species with an inflorescence very similar to that of *P. antennifera*. *Pleurothallis antennifera* is repent with a rhizome a few centimeters long between ramicauls, and without prolific ramicauls. The flowers of the two species are almost inseparable, differing mainly in the lateral lobes of the lip, which are larger and longer in *P. antennifera*.

Pleurothallis revoluta (Ruiz & Pav.) Garay, Caldasia 8: 520, 1962.

Bas.: *Humboldtia revoluta* Ruiz & Pav., Syst. Veg.1: 235, 1798.
Ety.: From the Latin *revolutus*, "rolled back," referring to the lip.

Syn.: *Pleurothallis diffusa* Poepp. & Endl., Nov. Gen. Sp. 1: 49, 1836, not Lindl. 1859.
Ety.: From the Latin *diffusus*, "diffuse," referring to the racemes.

Syn.: *Pleurothallis semipellucida* Rchb.f., Linnaea 22: 823, 1849.
Ety.: From the Latin *semipellucidus*, "semitranslucent," referring to the flowers.

Syn.: *Humboldtia diffusa* (Poepp. & Endl.) Kuntze, Rev. Gen. Pl. 667, 1891.

Syn.: *Humboldtia semipellucida* (Rchb.f.) Kuntze, Rev. Gen. Pl. 668, 1891.

Syn.: *Pleurothallis complicata* Rolfe ex Rusby, Mem. Torrey Bot. Club 6: 121, 1896.
Ety.: From the Latin *complicatus*, "deflexed upon itself," referring to the lip.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls slender to stout, erect, 15-30 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical-ovate, acute, 10-22 cm long, 4.5-7 cm wide, the base cuneate, sessile. **Inflorescence** 2-4 erect, simultaneously subdensely many-flowered racemes, 15-23 cm long including the peduncle 5-7 cm long, subtended by a spathe 1.5-2 cm long, at the base of the leaf; floral bracts 2-2.5 mm long; pedicels 1.5-2.5 mm long; ovary 1-1.5 mm long; **sepals** translucent green, usually spotted with purple or red, glabrous, the middle sepal elliptical-ovate, acute, 4.5-5.5 mm long, 1.5-2.5 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, subacute synsepal, 4.5-5.5 mm long, 2.5-3 mm wide, 4-5 mm wide expanded, 6-veined; **petals** light green, narrowly linear, acute, 4-5.5 mm long, 0.25-0.4 mm wide, 1-veined; **lip** green, more or less spotted, transversely oblong-reniform, obscurely 3-lobed, 1-2 mm long, 1.5-2 mm wide, to 3 mm wide expanded, acutely deflexed above the base, the apex rounded, minutely apiculate, the sides broadly rounded, flanking the column, the disc concave between the lobes, the base attached to the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

PERU: Without locality, *Ruiz & Pavón* (Holotype: MA); Cuchero, 1828, *E. Poeppig, tab. 86* (holotype of *P. diffusa*: W; isotype: P). Without locality, *Mathews s.n.* (K). **San Martín**: Zepalacio near Moyabamba, alt. 1100 m, May 1934, *G. Klug 3633* (K). **Cuzco**: Urubamba, ruins of Machu Picchu, alt. 2300 m, 29 Apr. 1953, *J.P. Hjerting & E. Petersen 1572* (C). **Cajamarca**: Hualgayoc, Hda. Taulis, alt. 2700-3000 m, 1 Sept. 1964, *P.C. Hutchison & K. von Bismarck 6415A* (AMES, UC).
BOLIVIA: **La Paz**: Larecaja, Mapiri, July-Aug. 1892, *M. Bang 1568* (holotype of *P. complicata*: K; isotypes: AMES, M, NY, US, W); San Carlos bei Mapiri, alt. 750 m, Oct. 1907, *O. Buchtien 1288* (AMES). *Cochabamba*: Chapare, new road to Villa Tunari, alt. 1500 m, 17 Jan. 1988, *C. Luer, J. Luer, R. Vásquez, T. & D. Mulder 12863* (MO); Chapare, old abandoned road to Villa Tunari, alt. 700 m, 30 Jan. 1997, *C. Luer, J. Luer, R. Vásquez, D. Ric & W. Teague 18317* (MO).
ECUADOR: **Sucumbíos**: between El Carmelo and La Bonita, alt. 2800 m, 8 Apr. 1979, *B. Løjtnant, U. Molau & M. Madison 12022* (AAU). **Pastaza**: Mera, 25-29 Apr. 1940, *M. Lugo 234, 247* (C, S); Mera, alt. 1100 m, 26 May - 6 June 1968, *G. Harling, G. Storm & B. Ström 9698, 9791, 9839, 10038* (GB). **Napo**: southeast of Cuyugúa, alt. 2350 m, 26 Oct. 1971, *B. MacBryde & J.E. Simmons 850* (AMES). **Morona-Santiago**: between Limón and Gualaquiza, alt. 1900-2000 m, 22 Mar. 1974, *G. Harling & L. Andersson 12738* (AMES, GB); Tumbes, north of Gualaquiza, alt. 1700-1800 m, 17 Apr. 1985, *G. Harling & L. Andersson 24250* (GB), C. Luer illustr. 15332. **Loja**: Parqué Nacional Podocarpus, Cerro Toledo, alt. 2600 m, 27 Feb. 1985, *B. Øllgaard et al. 58357* (AAU, QCA). **Zamora-Chinchipe**: terrestrial between Loja and Zamora, alt. 1800-1850 m, 21 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant, & B. Øllgaard 4142* (AAU, K); south of Zamora, alt. 1000-1250 m, 14 June 1988, *B. Øllgaard, J.E. Madsen, L.J. Christensen & B. Bergmann 74851* (AAU, QCA); Cordillera del Condor, east of Los Encuentros, alt. 1450 m, 18 May 1988, *C. Luer, A. Hirtz et al. 13426, 13439* (MO, QCNE).

COLOMBIA: **Cundinamarca**: Monte Redondo, lithophytic, alt. 1450 m, 27 July 1951, *M. Schneider 580* (S). **Cauca**: between San Juan and Villalobos, collected by J. Aguirre, cultivated at Colomborquídeas, 23 May 1995, *C. Luer 17565* (MO). **Nariño**: Ricaurte, alt. 1300 m, 12 Apr. 1941, *K. von Sneidern A.559* (AMES, S); above Ricaurte, alt. 1600 m, 3 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4588* (K, MO). VENEZUELA: "Caracas," *Otto s.n.* (holotype of *P. semipellucida*: W, not identified). Terr. Fed. Amazonas: Río Negro, Cerro de La Neblina, alt. 1250 m, 21 Mar. 1984, *R. Liesner & B. Stannard 16907* (K, MO). Isla Margarita: Cerro Copey, alt. 850 m, 2 May 1983, *A. Sugden 1206* (K, VEN). TRINIDAD: Without locality, Sept. 1881, *A. Fendler 790* (K); Arima to Blachisseuse road, 1 Apr. 1968, *P.D.W. Barnard 11-J* (K). Without locality, 1924, received from *N.E. Broadway s.n.* (AMES, NY).

This species is relatively frequent and widely distributed from coastal Venezuela through the Andes into Bolivia. The size and color of the flowers is variable. Most commonly the flowers are small and translucent green with small purplish spots. The protruding petals are narrowly linear, but various degrees of thickening occur toward the apex. The lip is transverse, concave centrally and acutely deflexed upon itself above the base with broadly rounded sides or lateral lobes to either side. The apiculum of the rounded apex points downward.

Pleurothallis roseola Luer & Hirtz, Lindleyana 11: 183, 1996.

Ety.: From the Latin *roseola*, "the German measles," in allusion to the red-dotted flowers.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls slender to stout, erect, 15-36 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, cordate-ovate, acute, acuminate, 10-17 cm long, 4.5-8 cm wide, the base cordate, sessile. **Inflorescence** 2-4 erect, simultaneously subdensely many-flowered racemes, 15-25 cm long including the peduncle 5-9 cm long, subtended by a spathe 2-3 cm long, at the base of the leaf; floral bracts 3-5 mm long; pedicels 3-4 mm long; ovary 2.5-3 mm long; **sepals** translucent light green to rose, usually spotted with purple or red, glabrous, the middle sepal elliptical-ovate, acute, 6 mm long, 3-3.75 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, obtuse synsepal, 6 mm long, 4.5-5 mm wide, unexpanded, 6-veined; **petals** light green, dotted with purple, narrowly linear-triangular, acute, 4-5.5 mm long, 0.6-0.75 mm wide, 3-veined; **lip** green, dotted with purple, broadly ovate-suborbicular, 3 mm long, 3 mm wide, acutely deflexed above the base, the apex rounded, minutely apiculate, the disc slightly convex, the base subtruncate, attached to the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Sucumbíos**: epiphytic in forest between El Carmelo and La Bonita, alt. 2400 m, Aug. 1990, *A. Hirtz, X. Hirtz, J. Del Hierro & F. Sarmiento 4990* (Holotype: MO); near La Bonita, alt. 1990 m, 8 July 1990, *C.H. Dodson, E. Hagsater, D. Rubio & N. Rivera 18474* (MO). **Napo**: epiphytic in forest below Papallacta, alt. 2850 m, 29 Oct. 1979, *C. Luer, J. Luer & A. Hirtz 4434* (SEL); between Baeza and Tena, alt. 2200 m, 29 May 1986, *C.H. Dodson & T. A. Dodson 16447* (MO); Guacamayo Range, alt. 1850 m, March 1991, *A. Hirtz & X. Hirtz 5346* (MO); Cosanga, 11 Aug. 1991, *A. Hirtz & S. Ortega 5352* (MO); Cosanga, 13 Aug. 1991, *A. Hirtz & S. Ortega 5401* (MO).

In habit, this species of northeastern Ecuador is similar to but larger than the frequent, sympatric *P. penduliflora* with a few long racemes produced from the base of a large, deeply cordate leaf, but the former differs in the suborbicular lip. The lip of the latter is trilobed with prominent, subfalcate, lateral lobes.

Pleurothallis saltatoria Lindl., Folia Orch. *Pleurothallis* 30, 1859.

Ety.: From the Latin *saltatorius*, "of dancing," in allusion to the dancing-like flowers.

Syn.: *Humboldtia saltatoria* (Lindl.) Kuntze, Rev. Gen. Pl. 668, 1891.

Plant medium to large, epiphytic, long-scandent, branching, up to 1 meter or more tall; roots slender. Ramicauls slender, ascending, proliferating, 8-24 cm long, with a tubular sheath below the middle and another at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 8-14 cm long, 1.5-4 cm wide, the base sessile, cuneate. **Inflorescence** 1-2 loose, simultaneously several to many-flowered racemes, 10-15 cm long including the peduncle 3-5 cm long, subtended by a spathe ca. 1 mm long at the base of the leaf; floral bracts infundibular, 5-6 mm long; pedicels 2-3 mm long; ovary 3-4 mm long; **sepals** rose, membranous, subcarinate, glabrous, the dorsal sepal ovate, acute, concave, 12-13 mm long, 6 mm wide, 3-veined, the lateral sepals completely connate into an ovate, subacute, concave synsepal, 12-13 mm long, 9 mm wide unexpanded, 6-veined; **petals** dark rose, semiterete, narrowly linear, acute, 13 mm long, 1.5 mm wide, 3-veined; **lip** transversely ovate-trilobed, 3 mm long, 5 mm wide across the

lobes, the middle lobe ovate, acute, slightly acuminate, the lateral lobes obliquely rounded, obtuse, not incurved, acutely deflexed above the base, attached to the base of the column; **column** terete, 2.5 mm long, footless, the anther and the stigma apical.

BOLIVIA: Without locality, *Bridges s.n.* (Holotype: K). **La Paz:** Murillo, along Río Zongo, alt. 2870 m, 21 Jan. 1988, *C. Luer, J. Luer, R. Vásquez, T. & D. Mulder 12960* (MO).

This species is endemic in northern Bolivia where it is frequent at high altitudes. It is characterized by a long, climbing habit with proliferating ramicauls. The raceme of relatively large flowers is flaccid and drooping. The middle sepal and synsepal are acute to subacute; the petals are narrowly linear, and the lip is three-lobed with the lobes basal and obliquely ovate.

Pleurothallis scintillata Luer, Phytologia 49: 216, 1981.

Ety.: From the Latin *scintillatus*, "sparkling," referring to the flowers.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 8-22 cm long, with a tubular sheath near the middle and another 2 at the base. **Leaf** erect, coriaceous, narrowly ovate-elliptical, acute, 6-9 cm long, 1-1.5 cm wide, the base sessile, narrowly subcordate-cuneate. **Inflorescence** 1-2 subcongested, simultaneously many-flowered racemes, 9-15 cm long including the peduncle 3-4 cm long, subtended by a slender spathe 1-1.5 cm long at the base of the leaf; floral bracts infundibular, 2-3 mm long; pedicels 3 mm long; ovary 2-3.5 mm long; **sepals** rose to dark purple, membranous, subcarinate, glabrous, the dorsal sepal ovate, acute, 5 mm long, 2.5 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, ovoid, obtuse, acuminate synsepal, 4.5 mm long, 4 mm wide unexpanded, 4-veined; **petals** purple or yellow, semiterete, narrowly triangular, acute, 4.5 mm long, 1 mm wide at the base, 1-(3-)veined; **lip** purple or yellow, cellular-glandular, transversely oblong-constricted, dumbbell-shaped, 1 mm long and deep in the rolled up position, 2 mm wide, with the apex or middle portion rounded, acutely revolute, apiculate, the sides (lateral lobes), broadly rounded, the base similarly revolute, attached to the base of the column; **column** stout, terete, 0.5 mm long, footless, the anther and the stigma apical.

ECUADOR: **Morona-Santiago:** on road embankment, east of the pass between Gualaceo and Limón, alt. 2900 m, 17 Sept. 1980, *C. Luer, J. Luer, C. Dodson et al. 5470* (Holotype: SEL). **Azuay:** around Lago Zorrogucho, alt. 3000 m, 5 June 1958, *C. Dodson 415* (SEL). **Zamora-Chinchipe:** elfin forest at pass east of Loja, alt. 2750 m, 19 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 3612, 3844, 3845, 3848, 3852* (AAU, AMES); same area, alt. 2800 m, 20 Nov. 1961, *C. Dodson & L. Thien 1472* (SEL); same area, alt. 2700 m, 21 Sept. 1980, *C. Luer, J. Luer, C. Dodson et al. 5580* (SEL); Nudo de Sabanilla, above Valladolid, alt. 2700 m, 4 Apr. 1985, *G. Harling & L. Andersson 23675* (AMES, GB); same area, alt. 2500-2700 m, May 1985, *D. D'Alessandro 425* (MO); same area, alt. 2780 m, 21 May 1971, *B. MacByde 328* (AMES); Quebrada Honda, alt. 2100-2200 m, 27 Mar. 1986, *D. D'Alessandro 556* (MO).

This species occurs at high altitudes in southern Ecuador. It is characterized by long, slender ramicauls; narrow leaves; and a raceme of purple flowers that seem to glisten. The dorsal sepal and synsepal are acute; the petals are thick and narrowly triangular; and the lip is transversely dumbbell-shaped, acutely revolute at the middle with the sides broadly rounded.

Pleurothallis secunda Poepp. & Endl., Nov. Gen. Sp. 1: 49, 1836.

Ety.: From the Latin *secundus*, "secund," referring to the flowers in a "one-sided" raceme.

Syn.: *Humboldtia secunda* (Poepp. & Endl.) Kuntze, Rev. Gen. Pl. 668, 1891.

Plant large, epiphytic, presumably caespitose. Ramicauls stout, erect, 20 to 45 cm long by Poeppig's published dimensions, incomplete in the specimen. **Leaf** erect, coriaceous, elliptical, acute, 14-15 cm long, 5-7.5 cm wide, the base cuneate, subsessile. **Inflorescence** 1-2 suberect to arching, lax, simultaneously several-flowered racemes, 10-12 cm long including the peduncle 2-3 cm long, subtended by a spathe ca. 1 cm long, at the base of the leaf; floral bracts 5 mm long; pedicels 5-8 mm long; ovary 2-3 mm long; **sepals** translucent with purple nerves, glabrous, the middle sepal elliptical-ovate, acute, 8-10 mm long, width unknown, probably 3-veined, the lateral sepals completely connate into a concave, narrowly obtuse synsepal, 8-11 mm long, 7-8 mm wide, 4-veined; **petals** narrowly triangular, acute, entire, slightly curved, 7-8 mm long, 2 mm wide, 3-veined; **lip** broadly cordate-triangular, 2 mm long, 3.25 mm wide, 3-veined, the apex sharply obtuse, the basal lobes broadly rounded with a low, curved callus within both margins, the base truncate, decurved, attached to the base of the column; **column** stout, terete, 1.25 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

PERU: **Huánuco**: Cuchero, on trunks of trees, Feb. 1830, *E. Poeppig 1746* (Holotype: W), C. Luer illustr. 16360.

This species is known only from the collection of the type in Peru by Poeppig in 1830. Other collections attributed to this species by Schweinfurth in the *Orchids of Peru* are misidentified. Garay erroneously identified *P. lindenii* as *P. secunda*, which was accepted by Schweinfurth. Dunsterville's illustration in *Venezuelan Orchids* of *P. bicornis* and *P. lindenii* is misidentified as *P. secunda*.

Pleurothallis secunda is characterized by a large, elliptical, acute leaf, and a few, loosely several-flowered racemes borne from the subsessile base. The racemes are drawn erect by Poeppig, but they appear to have been arched on the specimen, and shorter than the leaf. The flower appears similar to those of Bolivian *P. demissa*, which produces many flowers in a much longer, drooping raceme. The purple-veined (as described) dorsal sepal and concave synsepal are eight to ten millimeters long, and the shorter petals are entire and narrowly acute. Although the general outline of the lip in the drawing by Poeppig is reasonably portrayed, the inclusion of a long claw is probably a misinterpretation of the still-attached ovary and pedicel after removal of the sepals and petals. In reality, the lip is transversely cordate and sharply obtuse with broadly rounded basal lobes to either side of an acutely deflexed base. A low callus lies just within the basal margins.

Pleurothallis suspensa Luer, Selbyana 7: 124, 1982.

Ety.: From the Latin *suspensus*, "hanging," referring to the flaccid raceme.

Plant medium in size, epiphytic, caespitose, roots slender. Ramicauls erect to suberect, slender, 10-14 cm long, with a close, tubular sheath below the middle and another 1 or 2 at the base. **Leaf** erect to spreading, thinly coriaceous, elliptical-ovate, acute, slightly acuminate, 6-8.5 cm long, 2.5-3.5 cm wide, the base cuneate, sessile. **Inflorescence** 1-2 weak, drooping, distichous, loosely many-flowered racemes of simultaneous, all purple, non-resupinate flowers, 10-20 cm long including the peduncle ca. 5 cm long, from a spathe ca. 1 cm long at the base of leaf; floral bracts tubular, 4 mm long; pedicels 5 mm long; ovary 3 mm long; **sepals** membranous, glabrous, the dorsal sepal narrowly ovate, acute, 8 mm long, 2.75 mm wide, 3-veined, the lateral sepals connate into an ovate, acute, concave lamina, 8 mm long, 4.5 mm wide expanded; **petals** narrowly linear, thickened, acute, 7.5 mm long, 0.75 mm wide, 1-veined; **lip** broadly ovate-subtrilobed, arcuate, 2 mm long, 2 mm wide, the apex rounded, minutely apiculate, the sides erect below the middle, broadly rounded, the disc convex, slightly sulcate, the base truncate, hinged to the column-foot; **column** purple, stout, semiterete, 1 mm long, the anther and stigma apical, the foot obsolescent.

SURINAME: epiphytic in cloud forest, Wilhelmina Gebergte, alt. 800 m, collected 9 July 1981 by R. Determann 214, cultivated 6 Jan. 1982, *C. Luer 6972* (Holotype: SEL; Isotype: SBB).
GUYANA: Upper Mazaruni District, Plateau of Eboropu Mountain, alt. ca. 1100 m, 19 Apr. 1979, *P.J. Edwards 1415* (K).
VENEZUELA: **Bolívar**: El Dorado, alt. 3,000 ft., Aug. 1975, *G.C.K. Dunsterville 564*.

In both *Venezuelan Orchids Illustrated* and the field guide, this species is misidentified as *P. penduliflora* Kraenzl. The latter is a larger plant with deeply cordate leaves, and flowers distinguished by a lip with incurving lateral lobes. *Pleurothallis suspensa* is characterized by pendent, flaccid, lax racemes of purple flowers that overhang more or less horizontal leaves. In common with most allied species, the synsepal is concave and the petals are narrowly linear. The lip is broadly ovate and obtuse with broadly rounded erect sides.

Pleurothallis taurus Luer, Phytologia 47: 80, 1980.

Ety.: From the Latin *taurus*, "the bull," in allusion to the long-horned lip.

Plant large, epiphytic, long-scandent, to 50 cm or more tall; roots coarse. Ramicauls slender, prolific, erect to suberect, 4-13 cm long, with a tubular sheath near the middle and another sheath at the base. **Leaf** erect, coriaceous, elliptical-ovate, acute, shortly acuminate, 5-8 cm long, 1.5-3 cm wide, the base cuneate, sessile. **Inflorescence** a suberect to drooping, distichous, subdense, simultaneously many-

flowered raceme, 10-16 cm long including the peduncle ca. 3 cm long, from a spathe 1-1.5 cm long at the base of the leaf; floral bracts tubular, 5 mm long; pedicels 3-4 mm long; ovary 3 mm long; flowers non-resupinate, **sepals** yellow-green, with or without red dots, glabrous, subcarinate, the middle sepal ovate, acute, acuminate, 9 mm long, 3.75 mm wide, 3-veined, the lateral sepals connate to the apex into a deeply concave, ovoid, subacute, acuminate synsepal, 9.5 mm long, 5 mm wide, unexpanded, 4-veined; **petals** yellow-green, very narrowly linear, acute, thickened, 8 mm long, 0.4 mm wide; **lip** yellow-green, 3-lobed, 2 mm long, the middle lobe obtuse, shortly acuminate, 1.8 mm wide, 7 mm wide across the lobes expanded, the lobes basal, incurved, narrowly linear-oblong, acute, each 3 mm long, 0.5 mm wide, the base acutely deflexed, attached to the base of the column; **column** stout, terete, 1 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

COLOMBIA: **Putumayo**: forest between La Cocha and Sibundoy, alt. 2700 m, 29 July 1978, *C. Luer, J. Luer, J. Kuhn & R. Escobar et al. 3077* (Holotype: SEL). **Cauca**: Páramo de Barbillas, alt. 3070 m, 27 July 1978, *C. Luer, J. Luer, J. Kuhn & R. Escobar et al. 3043* (Holotype: SEL).
ECUADOR: **Sucumbíos**: above Playón de San Francisco, alt. 2900 m, 9 July 1990, *C.H. Dodson, E. Hagsater, D. Rubio & N. Rivera 18508* (MO).

The prolific, climbing habit of this species is similar to that of *P. ramificans* and *P. saltatoria*, and flowers similar to those of *P. hippocrepica*. The middle sepal and synsepal are acute and slightly acuminate and the petals are narrowly linear. The basal lobes of the lip that curve forward are narrowly linear and considerably longer than the midlobe.

Pleurothallis tectosa Luer, Lindleyana 11: 187, 1996.

Ety.: From the Latin *tectosus*, "with roofs," referring to the margins of the lobes of the lip.

Plant large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 26 cm long (only 1 ramicaul and leaf present), with a tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, ovate, acute, 16 cm long, 6.5 cm wide, the base broadly cuneate into the sessile base. **Inflorescence** a few erect, densely many-flowered racemes of simultaneous flowers, 13-22 cm long including the peduncle 5-6 cm long, subtended by a spathe 1.5 cm long, at the base of the leaf; floral bracts 3-3.5 mm long; pedicels 3 mm long; ovary 1.5-2 mm long; **sepals** yellowish with rose spots, glabrous, membranous, the dorsal sepal elliptical, acute, 6.5 mm long, 2.75 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, scaphoid, subacute synsepal, 6.5 mm long, 3.5 mm broad unexpanded, 6-veined; **petals** glabrous, narrowly linear, acute, 6 mm long, 0.3 mm wide; **lip** three-lobed, 2 mm long, 2 mm wide across the lateral lobes, the middle lobe deeply concave, ovate, shortly acuminate, the lateral lobes oblong with rounded apices directed forward, the medial margins meeting in the midline over the middle lobe, the disc without a callus, the base truncate, attached to the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, Patchicutza, alt. 1200-1500 m, June 1991, *A. Hirtz 5525* (Holotype: MO).

This species is superficially similar to many of the others of the subsection *Pleurothallis*, but it is easily distinguished by the long-subulate petals and a most peculiar lip. The middle lobe is ovate, shortly acuminate, and deeply concave, and more or less inflated beneath the oblong lateral lobes. The inner margins of the lateral lobes meet in the midline to form a roof over the cavity of the middle lobe.

Pleurothallis tenebrosa Luer, sp. nov.

Ety.: From the Latin *tenebrosus*, "dark," referring to the dark center of the flower.

Inter species subsectionis *Antenniferae* racemo paucifloro secundo folio elliptico sessili breviore, sepalis pallide ochraceis, petalis linearibus, labello transverse ovato obtuso infra medium atrofusco distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect to suberect, 5-9 cm long, with a tubular sheath below the middle, another 1-2 sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, 6-8 cm long, 2-2.5 cm wide, the base cuneate, sessile. **Inflorescence** an erect, strict, lax, secund, simultaneously few- to several-flowered raceme, 2.5-4 cm long including the peduncle ca. 1 cm long, from a spathe 6-7 mm long at the base of the leaf; floral bracts tubular, 3 mm long; pedicel 6 mm long below to 2 mm long above; ovary 1.5 mm long; **sepals** pale yellow-brown, glabrous, the dorsal sepal elliptical, subacute to obtuse, 3.5 mm long, 2 mm wide, 3-veined, the lateral sepals connate to the apex into a deeply concave, broadly ovoid, obtuse synsepal, 3.3 mm long, 3.3 mm wide, 6-veined; **petals**

yellow-brown, thick, narrowly linear-oblong, acute, 2.8 mm long, 0.4 mm wide; **lip** light yellow-brown above the middle, dark red-purple below the middle, transversely reniform-trilobed, 1.5 mm long, 2.25 mm wide across the lobes expanded, the anterior lobe or apex broadly rounded, minutely apiculate, the lateral lobes broadly rounded, incurved in the natural position, obtusely deflexed above the base, the disc with a slight depression above the base, attached to the base of the column-foot; **column** dark red-purple, stout, terete, 0.75 mm long, the foot thick, short, the anther apical, the stigma subapical.

VENEZUELA: **Zulia**: Sierra de Perijá, on trail from Pichicacao to Socorpa, alt. 1500 m, Sept. 1978, *G.C.K. Dunsterville 1401* (Holotype: SEL; Isotype: MO), C. Luer illustr. 18924.

This species, apparently endemic in the Sierra de Perijá between Venezuela and Colombia, was misidentified in *Orchids of Venezuela, Field Guide* as *P. sanluisii* Foldats. The true *P. sanluisii*, a species of subsection *Pleurothallis*, was misidentified as the Central American *P. longipedicellata* Ames & C.Schweinf. These errors led to *P. sanluisii* being described as *P. stalkyi*.

Pleurothallis tenebrosa is distinguished from other species of this subsection by elliptical, sessile leaves, and shorter racemes of small, light tan flowers with a prominent, dark purple-brown suffusion across the lower half of the lip and column. The lip is transversely ovate with broadly rounded lateral margins and apex.

Pleurothallis trifurcata Luer, Lindleyana 11: 190, 1996.

Ety.: From the Latin *trifurcatus*, "trifurcate," referring to the three-pronged lip.

Plant large, epiphytic, caespitose; roots numerous, slender. Ramicauls slender, erect, 10-40 cm long, with a thin, tubular sheath near the middle and 2-3 others near and at the base. **Leaf** erect, coriaceous, elliptical, acute, shortly acuminate, 7-15 cm long, 2-5 cm wide, the base sessile, broadly to narrowly cuneate. **Inflorescence** racemose, 1-2 erect to arching, loose, simultaneously several-flowered racemes, 8-20 cm long including the peduncle 4-6 cm long, subtended by a slender spathe 0.5-1 cm long at the base of the leaf; floral bracts 3-5 mm long; pedicel 4-5 mm long; ovary 2-3 mm long; **sepals** yellow or orange, with or without brown or purple spots, glabrous, the dorsal sepal ovate, acute, shortly acuminate, 9-10 mm long, 4-5 mm wide, 3-veined, the lateral sepals completely connate into an ovate, concave, acute, subacuminate synsepal, 9-10 mm long, 5 mm wide unexpanded, 6-veined; **petals** yellow or orange, with or without spots, terete, linear-subulate, acute, 8-9 mm long, 1 mm wide, 1-veined; **lip** yellow or orange, deeply trifurcate, 3-4 mm wide, the middle lobe triangular, acute, 3-4 mm long, the lateral lobes narrowly oblong, obtuse, 2 mm long, the disc featureless, the base acutely deflexed, attached to the undersurface of the column; **column** greenish white, terete, 2-3 mm long, footless, the anther and the stigma apical.

ECUADOR: **Tungurahua**: Cordillera de los Llanganates, Leito, alt. 3100 m, 11 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11140* (Holotype: MO). **Loja**: above Yangana, north of the pass, alt. 2600 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10900* (MO); at the pass north of Loja, alt. 3150 m, 17 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9551* (MO). **Morona-Santiago**: Campamento San Miguel between Sigsig and Gualaquiza, alt. ca. 3000 m, 8 Apr. 1968, *G. Harling, G. Storm & B. Strōm 8051* (AMES, GB). **Napo**: between Cuyuja and Papallacta, alt. 2650 m, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 6917* (AAU). **Zamora-Chinchipe**: south of Yangana above Valladolid, alt. 2700 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10821* (MO); Nudo de Sabanilla, between Yangana and Valladolid, alt. 2800-2900 m, 5 Apr. 1985, *G. Harling & L. Andersson 23720, 23728* (GB).

COLOMBIA: **Narlño**: Pusaquer, alt. 1800 m, 20 May 1876, *E. André 3722* (K); La Cocha, Isla de La Corota, alt. 2900 m, 16 June 1964, *I.E. Mora O. 3091* (AMES, PSO).

This species is not infrequent on the eastern slopes of the Andes of Ecuador at relatively high altitudes. Loosely several-flowered racemes of usually spotted flowers are produced from the base of an elliptical leaf. It is most closely allied to the Bolivian *P. saltatoria*, differing mostly in the deeply trifurcate lip. In *P. saltatoria* the lip is trilobed with the middle lobe ovate, and the lateral lobes obliquely obtuse. In both species the base of the lip is acutely reflexed and attached to the undersurface of a footless column.

Pleurothallis tuzae Luer, Orquideología 21: 132, 1999.

Ety.: Named for the Tuza mines where this species was collected.

Plant medium in size, presumably epiphytic, caespitose; roots slender. Ramicauls slender, erect, 8-17 cm long, with a tight tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 6-10 cm long, 1.5-2 cm wide, the base narrowly cuneate into an indistinct petiole ca. 1.5 cm long. **Inflorescence** a few suberect, lax few-flowered racemes of simultaneous flowers, up to 5 cm long including the peduncle ca. 2 cm long, subtended by a spathe 10-13 mm long, at the base of the leaf; floral bracts infundibular, 4.5 mm long; pedicels 6-7 mm long; ovary 3.5 mm long; **sepals** translucent white with red-brown stripes, glabrous, membranous, the dorsal sepal narrowly ovate, acute, 12 mm long, 3 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, scaphoid, acute synsepal, 13 mm long, 8 mm wide expanded, 6-veined; **petals** glabrous, narrowly ovate, acute, dilated on the labellar margin below the middle, thickened above the middle, 11 mm long, 2.5 mm wide, 3-veined; **lip** three-lobed, 2.5 mm long, 3 mm wide across the lateral lobes, the middle lobe triangular, flat, acute, longer than the lateral lobes, the lateral lobes oblong with rounded apices directed forward, the medial margins flattened, meeting in the midline over the middle lobe, the disc without a callus, the base truncate, attached to the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

COLOMBIA: **Antioquia**: La Ceja, Tuza mines, without altitude or date, *F.C. Lehmann s.n.* (H.K. 60, Holotype: K), C. Luer illustr. 18695. (Other collections from Tuza have been between 1500 and 2800 meters above sea level, and also undated.)

In habit, this species is similar to many of the others of the subsection, but it is distinguished by the narrowly elliptical, subpetiolate leaf; a lax, few-flowered raceme; long-pointed petals; and a three-lobed lip resembling that of *P. tectosa*. The inner margins of the lateral lobes are flattened like a roof over the middle lobe. The middle lobe is ovate, flat and acute, longer than the lateral lobes.

Pleurothallis urceolata Luer, Phytologia 46: 373, 1980.

Ety.: From the Latin *urceolatus*, "pitcher-shaped," referring to the midlobe of the lip.

Plant large, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls slender to stout, erect, 28-38 cm long, with a thin, tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical-ovate, acute, shortly acuminate, 11-17 cm long, 2.5-7 cm wide, the base sessile, cuneate to subcordate. **Inflorescence** 1-3 erect to arching, subdense, simultaneously many-flowered racemes, 15-25 cm long including the peduncle 6-7 cm long, subtended by a spathe 1.5-2.5 cm long at the base of the leaf; floral bracts 3-6 mm long; pedicels 3-5 mm long; ovary 3 mm long; **sepals** yellow with purple dots, glabrous, the dorsal sepal ovate, acute, slightly acuminate, 8 mm long, 4 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, ovate, acute, subacuminate synsepal, 8 mm long, 5 mm wide unexpanded, 6-veined; **petals** yellow with purple spots, linear-subulate, attenuate, acute, 8 mm long, 0.6 mm wide, 1-veined; **lip** green, 3-lobed, 1.5 mm long, 3 mm wide across the lobes, the middle lobe broadly ovate, concave, with the margins toward the apex involute to form an acute tip, the lateral lobes antrorse, convex, oblong, rounded at the ends, 1.5 mm long, 1 mm wide, the base acutely deflexed, truncate, densely attached to the base of the column; **column** green, stout, terete, 1.5 mm long, footless, the anther and the stigma apical.

ECUADOR: **Napo**: north of Baeza, alt. 1500 m, 10 Aug. 1978, *C. Luer, J. Luer & A. Hirtz 3228* (Holotype: SEL); between Cuyuja and Papallacta, alt. 2800-2900 m, 5 June 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 6879* (AAU); near Papallacta, alt. 2850 m, 29 Oct. 1979, *C. Luer, J. Luer & A. Hirtz 4435* (SEL); Cuyuja, between Quito and Baeza, alt. 2450 m, 30 June 1986, *C.H. Dodson & T. A. Dodson 16523* (MO); same area, alt. 2450 m, 27 July 1986, *C.H. Dodson & T. A. Dodson 16574* (MO). **Carchi**: between El Pun and Puente Chingual, alt. 2850 m, 15 July 1955, *E. Asplund 16943* (AMES, GB, NY, S); southeast of Tulcán toward El Carmelo, alt. 3000 m, 23 Mar. 1978, *C. Luer, J. Luer & A. Hirtz 2746* (SEL); between Tulcán and El Carmelo, alt. 2780 m, 8 July 1990, *C.H. Dodson, E. Hagsater, D. Rubio & N. Rivera 18438* (MO). **Sucumbíos**: near Santa Bárbara, alt. 2700 m, 15 July 1955, *E. Asplund 16956* (AMES, GB, K, NY, S); between El Carmelo and Santa Bárbara, alt. 2500 m, 10-15 Feb. 1959, *G. Harling 4116* (S); east of Santa Bárbara, alt. 2300-2600 m, July 1982, *C.H. Dodson & A. Embree 13069* (SEL, US).

This species is relatively frequent in northwestern Ecuador. It is vegetatively similar to many of its relatives characterized by a long ramicaul, an ovate leaf, and long, many-flowered racemes with flowers with a concave synsepal and narrowly linear petals. The lip, however, is distinctive with oblong, convex, lateral lobes and a broad, concave midlobe with a pointed, spoutlike tip.

Pleurothallis veliformis Luer & Dalström, Lindleyana 11: 194, 1996.

Ety.: From the Latin *veliformis*, "formed like a veil," in allusion to the pendent, branching habit.

Plant medium large, epiphytic, pendent, scandent; roots slender, from apices of ramicauls. Ramicauls slender, pendent, proliferating other ramicauls near the apex, from 18 cm long above to 6 cm long below, with a close tubular sheath near the middle and 2-3 others at the base. **Leaf** pendent, coriaceous, elliptical, acute, acuminate, 9-11 cm long, 2.5-3.25 cm wide, the base cuneate into a petiole 3-5 mm long. **Inflorescence** a loose, pendent raceme 7-9 mm long including the peduncle 3-5 cm long, simultaneously several-flowered, subtended by a spathe 1.5 cm long; floral bracts 3 mm long; pedicels 4 mm long; ovary 3 mm long; **sepals** pale green with purple spots, glabrous, the middle sepal elliptical-ovate, acute, 9 mm long, 3.5 mm wide, 3-veined, the lateral sepals completely connate into a concave, acute synsepal, 9 mm long, 5 mm broad expanded, 6-veined; **petals** pale green, glabrous, thickened, linear, acute, 9 mm long, 0.9 mm wide, 1-veined; **lip** green, 3-lobed, 0.75 mm long, 3 mm wide, acutely deflexed near the middle, the lateral lobes broadly rounded, concave, the middle lobe ovate, subacute with a bristle-like apiculum, the base shortly but acutely reflexed onto the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: Imbabura: epiphytic in wet forest, Los Cedros Reserve, alt. 1500-1650 m, 25 Mar. 1996, *D. Dalström, S. Ingram & K. Ingram-Ferrell 2216* (Holotype: MO).

This member of the subsection differs from all its relatives by the long, pendent, branching habit. Massive vegetative curtains of plants hang in the damp, shady forest. The pendent raceme is shorter than the leaf; the sepals bear large, purple spots; the petals are narrowly linear; and the lip is three lobed with the lateral lobes broadly rounded and concave, and with the middle lobe bearing a slender, bristle-like apiculum.

SUBSECTION *LONGIRACEMOSAE*

Pleurothallis subgen. **Pleurothallis** sect. **Pleurothallis** subsect. **Longiracemosae** (Luer) Luer, Monogr. Syst. Bot. 72: 4, 1998.

Type: *Pleurothallis litotes* Luer, Selbyana 5: 170, 1979.

Ety.: From the Latin *longiracemosus*, "with long racemes," referring to the inflorescence.

Syn.: *Pleurothallis* series *Longiracemosae* Luer, Monogr. Syst. Bot. 20: 64, 1986.

Plants perennial, small to medium in size, normally epiphytic, caespitose; roots slender. Ramicauls erect to suberect, slender, terete, non-pseudobulbous, unifoliate, with a closely fitting tubular sheath below the middle and 2-3 other sheaths at the base. **Leaf** erect or suberect, coriaceous, smooth, elliptical-ovate to narrowly elliptical-ovate, the apex acute, shallowly notched with a mucro in the sinus, the base sessile, cuneate. **Inflorescence** racemose, erect, the flowers usually resupinate, variously colored, borne by a slender peduncle that emerges from the apex of the ramicaul at the base of the leaf with a reclining spathe; floral bracts thin, infundibular or tubular, acute; pedicels usually about as long as the floral bract; ovary smooth, trivalvate; **sepals** glabrous, membranous, acute, subacute or obtuse, to acuminate, the dorsal sepal free from the lateral sepals, the lateral sepals completely connate into a shallowly concave or cucullate synsepal; **petals** more or less thickened, expanded, narrowly oblong to narrowly linear, acute to acuminate, entire; **lip** ovate, obtuse to acute, with rounded sides, without deflexion, the base truncate, flexibly or inflexibly attached to the thickened base of the column or column-foot; **column** terete, non-winged, the anther apical and the stigma apical or subapical, pollinia 2, obovoid, with a microscopic viscidium, the base of the column thickened with the apex of the ovary.

The first species attributable to subsection *Longiracemosae* was described from Suriname by Lindley in 1842 as *P. pruinosa*, a frequent, widely distributed, small species. The next species to qualify for the subsection was *P. xanthochlora*, the giant of the subsection. The other species of the subsection were added in the twentieth century. Subsection *Longiracemosae* is one of the seven closely related subsections of section *Pleurothallis*.

Subsection *Longiracemosae* is characterized by a caespitose habit with well-developed but slender, non-compressed ramicauls that are about as long as the leaf. The racemose inflorescence is terminal at the base of a sessile leaf. The flowers are small or very small and usually resupinate. As in the other subsections, the dorsal sepal is free from the lateral sepals, and the lateral sepals are connate into a concave synsepal. The petals are more or less thickened, entire and oblong. The lip is entire, ovate and concave with the sides lobe-like and rounded, but the undersurface is flat or convex, there being no reflexion that distinguishes this subsection from subsection *Antenniferae*. No glenion is present. The base is transversely thickened, more or less concave on the end, without being deflexed, and attached to an abbreviated column-foot. The column is semiterete, wingless and toothless with an apical, unhooded anther and an apical or subapical stigma and an abbreviated, vestigial or absent column-foot.

At present eight species are brought together by the above criteria; all are superficially similar in spite of sizes, but not all are closely related. They are widely distributed in the Andes of South America, with only *P. pruinosa* occurring in Central America and the Antilles.

BINOMIALS PUBLISHED IN *PLEUROTHALLIS* REFERABLE TO SUBSECTION *LONGIRACEMOSAE*

Pleurothallis atrorubra Luer & Hirtz = **P. leopardina**
Pleurothallis divaricans Schltr. .....Fig. 40.
Pleurothallis dolichocaulon Schltr. = **P. xanthochlora**
Pleurothallis flavida (H.Focke) Lindl. = **P. pruinosa**
Pleurothallis huanucoënsis Schltr. = **P. xanthochlora**
Pleurothallis leopardina Luer.....Fig. 41.
Pleurothallis litotes Luer.....Fig. 42.
Pleurothallis pauciflora Schltr. = **P. pruinosa**
Pleurothallis poculifera Luer & Escobar.....Fig. 43.
Pleurothallis pruinosa Lindl. .....Fig. 44.
Pleurothallis tanyrhina Luer & Escobar .....Fig. 45.
Pleurothallis uninervia Luer & Dodson .....Fig. 46.
Pleurothallis xanthochlora Rchb.f. .....Fig. 47.

KEY TO THE SPECIES OF SUBSECTION *LONGIRACEMOSAE*

1 Ramicauls less than 7 cm long .....*P. pruinosa*
1' Ramicauls more than 8 cm long.....2

2 Leaves less than 1 cm wide 3
2' Leaves more than 1 cm wide.....4

3 Dorsal sepal deeply concave, 3-veined; lip obovate.....*P. divaricans*
3' Dorsal sepal not deeply concave, 1-veined; lip ovate.....*P. uninervia*

4 Leaves more than 5 cm wide .....*P. xanthochlora*
4' Leaves between 1 and 4 cm wide.....5

5 Petals elliptical, 3-veined, more than 1 mm wide.....*P. poculifera*
5' Petals elliptical, 1-veined, less than 1 mm wide.....6

6 Lip obtuse but distinctly acuminate; rostellum elongate.....*P. tanyrhina*
6' Lip obtuse, not acuminate; rostellum not elongate.....7

7 Lip with a pair of low, rounded calli above the middle.....*P. leopardina*
7' Lip without calli 8

8 Dorsal sepal obtuse; petals obtuse, more than 0.5 mm wide.....*P. divaricans*
8' Dorsal sepal acute; petals acute, less than 0.5 mm wide.....*P. litotes*

Pleurothallis divaricans Schltr., Repert. Spec. Nov. Regni Veg. 10: 387, 1912.

Ety.: From the Latin *divaricans*, "spreading apart," referring to the racemes.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect to suberect, 3-15 cm long, with a thin, tubular sheath below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical-ovate, acute, 5-8 cm long, 1-2 cm wide, the base narrowly cuneate, sessile. **Inflorescence** 1-3 erect to arching, congested, distichous, simultaneously many-flowered racemes, 4-13 cm long including the peduncle 1-5 cm long, subtended by a slender spathe 0.5-1 mm long at the base of the leaf; floral bracts infundibular, 1.5-2 mm long; pedicels 1-2 mm long; ovary 1-1.5 mm long; **sepals** pale green, mottled or spotted with brown, glabrous, the dorsal sepal broadly ovate, obtuse, concave, 2-2.25 mm long, 1.5-2 mm wide, 3-veined, the lateral sepals connate into an ovate, concave, obtuse synsepal, 2-2.5 mm long, 1.75-2 mm wide, 2- to obscurely 4-veined; **petals** suffused or dotted with purple, oblong, obtuse to rounded at the apex, 1-1.25 mm long, 0.5-0.6 mm wide, 1-veined; **lip** green, suffused with purple, broadly obovate, concave, obtuse, 1.4-1.8 mm long, 1.4-1.5 mm wide expanded, the disc featureless, cellular toward the apex, the base truncate, shallowly concave on the end, fixed to the base of the column; **column** terete, thick at the base, 1 mm long, the anther and the stigma apical, the foot obsolescent.

PERU: **Chanchamayo**: Río Blanco, coffee trees, Hda. Sta. Tereza, alt. 1400 m, 1906, *E. Köhler s.n.* (Holotype destroyed at B, photo of type at AMES by Field Museum of Natural History, neg. no. 18387); Chanchamayo Valley, alt. 1200 m, Mar. 1930, *C. Schuncke 1330* (Neotype of *P. divaricans* here designated: AMES). **Cuzco**: Urubamba, Machu Picchu, alt. 2060 m, 15 Apr. 1943, *C. Vargas 3350* (AMES, CUZ); Urubamba, Huiñaihuaina, alt. 2550 m, 9 Mar. 1944, *C. Vargas 4110* (AMES, CUZ). **Junín**: Hda. Schuncke above San Ramón, alt. 1400-1700 m, 8 June 1929, *E.P Killip & A.C. Smith 24854* (AMES is a Stelis!, US);
BOLIVIA: **La Paz**: Murillo, Zongo valley, collected by Paula Keeler, cultivated in Bellingham, WA, Feb. 1998, *P. Keeler s.n.* (MO), C. Luer illustr. 19053. **Cochabamba**: near Cocapata, alt. 2630 m, 5 Feb. 1997, *C. Luer. J. Luer, R. Vásquez et al. 18396* (MO).
ECUADOR: **Napo**: north of Baeza, eastern slopes of Reventador, alt. 1850 m, 11 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, A. Embree & W. Flores 11779* (MO). **Pastaza**: north of Puyo, alt 1000 m, 12 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11215* (MO). **Morona-Santiago**: south of Arapicos, alt. 800-900 m, 6 Apr. 1981, *H. Lugo 6011* (GB); valley of Río Calagras, alt. 1500 m, 17 May 1988, *C. Luer, A. Hirtz et al. 13409* (MO, QCNE); north of Macas, alt. 1050 m, 15 Jan. 1989, *C. Luer, J. Luer, A. Hirtz, A. & J. Jesup 13903* (MO). **Zamora-Chinchipe**: Cordillera del Condor, east of Mayaicu, alt. 1300 m, 20 May 1988, *C. Luer, A. Hirtz et al. 13506* (MO); Cordillera del Condor, east of Los Encuentros, alt. 1450 m, 18 May 1988, *C. Luer, A. Hirtz, et al. 13430* (MO); south of Zamora, Río Jamboe, alt. 1550 m, 22 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16100* (MO).
COLOMBIA: **Valle del Cauca**: Cali, Farallones de Cali, alt. 1500 m, 13 Jan. 1975, *D. Hartman 62* (CUVC); Felidia, Finca El Diamante, alt. 1800 m, 7 Nov. 1992, *F. Tupac O. 305* (CUVC, MO).
PANAMA: **Chiriquí**: below Volcán, alt. ca. 1000 m, collected with H. Butcher, 1976, cultivated at SEL, *C. Luer 1388* (SEL).

This species is relatively frequent in the Andes, but it is also known from a collection in western Panama. Similar in appearance to a *Stelis*, this species is also related to the somewhat larger *P. leopardina*. The leaves of *P. divaricans* are narrowly elliptical and acute. One to three densely many-flowered racemes usually surpass the leaves, but the racemes are sometimes only half the length of the leaves. The tiny flowers are subglobose, with the concave dorsal sepal similar to the concave synsepal. The minute petals are oblong, and minute lip is obovate, obtuse and concave.

Pleurothallis leopardina Luer, Phytologia 49: 209, 1981.

Ety.: From the Latin *leopardinus*, "like a leopard," referring to the spotted sepals.

Syn.: *Pleurothallis atrorubra* Luer & Hirtz, Lindleyana 11: 148, 1996.

Ety.: From the Latin *atroruber*, "dark red," referring to the color of the flowers.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-21 cm long, with a thin, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical-ovate, acute, 5-14 cm long, 1.5-4.5 cm wide, the base broadly cuneate, sessile. **Inflorescence** 1-6 erect to arching, sub-dense, distichous or sub-secund, simultaneously many-flowered racemes, 6-11 cm long including the peduncle 1-4 cm long, subtended by a slender spathe 1-1.5 mm long at the base of

the leaf; floral bracts infundibular, 2-3 mm long; pedicels 3-6 mm long; ovary 1.5-2 mm long; **sepals** pale green, spotted with purple, or unspotted red-purple, glabrous, the dorsal sepal broadly ovate, obtuse, concave, 2.25-4 mm long, 1.5-3 mm wide, 1- to obscurely 3-veined, the lateral sepals connate into an ovate, concave, obtuse synsepal, 2.5-3.5 mm long, 2-3 mm wide, 2-veined; **petals** red or spotted red, oblong, thickened at the rounded apex, 1.25-2 mm long, 0.5-0.9 mm wide, 1-veined; **lip** red-purple or spotted with red-purple, ovate to obovate, concave, obtuse, 1.5-2.25 mm long, 1.5-2.75 mm wide expanded, the disc with a pair of low, rounded calli above the middle, the base truncate, shallowly concave on the end, fixed to the base of the column; **column** terete, stout, thick at the base, 1-1.5 mm long, the anther and the stigma apical, the foot obsolescent.

ECUADOR: **Loja**: south of Yangana, alt. 2450 m, 12 May 1981, *C. Luer, J. Luer & D. D'Alessandro 6190* (Holotype: SEL); Cachaco, between Yangana and Valladolid alt. 2450 m, 24 July 1985, *C. Dodson, A. Embree & D. D'Alessandro 16024* (MO), C. Luer illustr. 17202. **Napo**: epiphytic in forest between Papallacta and Cuyuja, alt. 2500 m, June 1989, *A. Hirtz & X. Hirtz 4254* (holotype of *P. atrorubra*: MO). **Azuay**: Sevilla de Oro, alt. 3200 m, 1 July 1947, *G. Harling 1354* (S), C. Luer illustr. 17103.
COLOMBIA: **Cauca**: Alto de Pesares above Popayán, alt. 2400-2800 m, *F.C. Lehmann 7142* (K).

This species superficially resembles a *Stelis* and is closely related to the frequent and sympatric *P. divaricans*. Both vegetatively and florally, the two concepts are similar, except for *P. leopardina* being slightly larger. They are characterized by an elliptical leaf and several, many-flowered racemes of small, dark red or purple-spotted flowers. The petals are thickened and obtuse. The lips are broadly ovate and concave without deflexion, but *P. leopardina* is distinguished by a pair of low, rounded calli above the middle. A cleistogamous form has been seen.

Pleurothallis litotes Luer, Selbyana 5: 170, 1979.

Ety.: From the Greek *litotes*, "simplicity," in allusion to the simple habit and floral parts.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 7-37 cm long, with a thin, tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical-ovate, acute, 7-17 cm long, 1.5-6.5 cm wide, the base sessile, cuneate. **Inflorescence** racemose, 1-6 erect, sublax to subdense, simultaneously many-flowered racemes, 8-17 cm long including the peduncle 1-3 cm long, subtended by a slender spathe 0.5-2 cm long at the base of the leaf; floral bracts 2.5-4 mm long; pedicel 3-6 mm long; ovary 1.5-2.5 mm long; **sepals** red-purple, rose or white, glabrous, the dorsal sepal ovate, acute, concave, 2.6-4 mm long, 1.4-2.5 mm wide unexpanded, 3-veined, the lateral sepals completely connate into an ovate, concave, subacute or narrowly obtuse synsepal, 2.6-3.5 mm long, 2.25-3.25 mm wide expanded; **petals** with the color of the sepals, thick, oblong-elliptical, acute, 2.25-4 mm long, 0.5-1 mm wide, 1-veined; **lip** usually bright green, ovate-cordate, concave, subacute, often minutely apiculate, 1.2-2.5 mm long, 1.2-2 mm wide, the disc concave, thickened transversely across the base, the base hinged to the column-foot; **column** broadly terete, 0.8-1.5 mm long, the anther and viscidium apical, the stigma ventral, the foot obsolescent.

ECUADOR: **Carchi**: cloud forest above Maldonado, alt. ca. 2700 m, 21 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2700* (Holotype: SEL); west of pass between Tulcán and Maldonado, alt. 3400 m, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15062* (MO); above El Carmelo, alt. ca. 3000 m, 23 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2747* (SEL): between Tulcán and El Carmelo, alt. 3100-3200 m, 26 Feb. 1974, *G. Harling & L. Andersson 12244* (GB). **Sucumbíos**: east of Santa Bárbara, alt. 2300-2600 m, July 1982, *C.H. Dodson & A. Embree 13071* (SEL, US). **Morona-Santiago**: east of Paute toward dam site, alt. 2000 m, 10 July 1977, *C. Luer, J. Luer, G. Luer & A. Andreetta 1761* (SEL). **Azuay**: south of Cuenca, alt. ca. 3000 m, 17 July 1977, *C. Luer, J. Luer & G. Luer 1821* (SEL).
COLOMBIA: **Antioquia**: Minas Zugá, *F.C. Lehmann B.T. 316* (AMES, K), C. Luer illustr. 17091. **Cauca**: around Corrales, eastern slopes of the Central Cordillera above Popayán, alt. 2400-2800 m, H.K. 104, *F.C. Lehmann s.n.* (K); Alto de Pesares above Popayán, alt. 2400-2800 m, *F.C. Lehmann 7142* (AMES); above Monchiqui, alt. 2750 m, 26 July 1978, *C. Luer, J. Luer, J. Kuhn & R. Escobar 2997* (SEL).

This species, first collected in Colombia in the nineteenth century by Consul Lehmann, is more commonly found in Ecuador today. It is related to the equally widely distributed *P. divaricans*. Slender ramicauls bear elliptical-ovate, sessile leaves, and from a small spathe at the base of the leaf, one or a few, very small-flowered racemes surpass the leaves in length. The dorsal sepal and synsepal are acute or subacute and not deeply concave. The petals are oblong, acute and one-veined. The small lip, usually emerald green in color, is cordate and concave with a transverse callus at the base.

Pleurothallis poculifera Luer & Escobar, Orquideología 14: 166, 1981.

Ety.: From the Latin *poculum*, "a cup with a spout, or a beaker," and *fer*, "-bearing," in allusion to the shape of the sepals and lip.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, terete, 12-18 cm long, with a close, tubular sheath below the middle and another at the base. **Leaf** suberect to spreading, coriaceous, ovate, acute, 5-6 cm long, 13-18 mm wide, the base rounded, sessile. **Inflorescence** an erect, loose, 2- to 7-flowered raceme 3.5-6 cm long including the slender peduncle, from a 6 mm long spathe at the base of the leaf, the flowers short-pedicellate, erect, non-resupinate; floral bract 1.5-2 mm long; pedicel 1.5-2 mm long; ovary 1.5 mm long, subverrucose; **sepals** yellow-white to white, with or without light purple spots, glabrous, the middle sepal ovate, concave, acute, 4 mm long, 2 mm wide, the lateral sepals connate into a deeply concave, cucullate (uppermost) synsepal 4 mm long, 2.5 mm wide expanded, with the apex rounded; **petals** elliptical, 3 mm long, 1.5 mm wide, acuminate, acute, the base subunguiculate; **lip** white, ovate, concave, acute, with erect, rounded lateral lobes below the middle, 2 mm long, 2 mm wide expanded, the disc with a pair of adjacent subspherical, glandular-cellular calli above the base, and a low, smooth callus on either side above the middle; **column** stout, 1.5 mm long, with a short, thick foot.

COLOMBIA: **Cauca**: without locality or collector, cultivated by Amalia Lehmann de Sarria in Popayan, Colombia, cultivated 25 July 1978, *C. Luer 3008* (Holotype: SEL).

This species is characterized by the elongated ramicaul; an ovate, sessile leaf; a few-flowered raceme about as long as the leaf; short-pedicellate, non-resupinate, little flowers with comparatively large, entire, three-veined petals; and an ovate, concave lip with a pair of rounded calli above the base.

Pleurothallis pruinosa Lindl., Edwards' Bot. Reg. 28: Misc. 75, 1842.

Ety.: From the Latin *pruinosus*, "pruinose," referring to the bloom of the leaves.

Syn.: *Stelis flavida* H.Focke, Tijdschr. Wis-Natuurk. Wettensch. 2: 202, 1849.
Ety.: From the Latin *flavidus*, "yellowish," referring to the flowers.

Syn.: *Pleurothallis flavida* (H.Focke) Lindl., Folio Orch. *Pleurothallis* 44, 1859.

Syn.: *Humboldtia pruinosa* (Lindl.) Kuntze, Rev. Gen. Pl. 668, 1891.

Syn.: *Pleurothallis pauciflora* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 192, 1923.
Ety.: From the Latin *pauciflorus*, "few-flowered," referring to the inflorescence.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-7 cm long, with a close, tubular sheath above the base and another at the base. **Leaf** erect, thickly coriaceous, narrowly elliptical-ovate, narrowly subacute to obtuse, sessile, 1.5-4 cm long, 0.4-0.8 cm wide, the base cuneate. **Inflorescence** a lax, simultaneously few-flowered raceme, 2-4 cm long including the slender peduncle 1-1.5 cm long, borne from a spathe 2-3 mm long, at the base of the leaf; floral bracts 1-1.5 mm long; pedicels 1-1.5 mm long; ovary 1-1.5 mm long; **sepals** translucent light yellow-green, glabrous, the dorsal sepal ovate, acute, concave below middle, 2.5-4 mm long, 0.8-2 mm wide, 3-veined, the lateral sepals connate into an ovate, concave, subacute synsepal, 2.5-4 mm long, 1.2-2.5 mm wide, 4-veined; **petals** translucent, narrowly linear-ovate, acute, 2-3.5 mm long, 0.25-0.5 mm wide, 1-veined; lip light yellow-green, triangular-ovate, subacute to obtuse, 1.3-2 mm long, 0.8-1.25 mm wide, the disc with a faint, curved callus above the base, the base shallowly concave, subtruncate, hinged to the base of the column; column stout, semiterete, 0.75-1 mm long, the anther and bilobed stigma apical, the foot thick, microscopically pubescent, rudimentary.

SURINAME: without locality, on *Crescentia* trees, *F.L. Splitgerber 527* (Holotype: K, Isotype: W); 19 Jan. 1838, *F.L. Splitgerber 155* (W); Vrieland, *H.R. Wullschlaegel 534, 535* (W); Vreeland, *H.C. Focke 534* (BR); without locality, *H.C. Focke s.n.* (W); without locality, 14 May 1843, *H.C. Focke 55* (holotype of *Stelis flavida*: W); Brokopondo, south of Afobaka, Feb. 1965, *J. van Doneslaar 2100* (AMES).
GUYANA: Vicinity of Wismar on the Demirara River, 12-16 Oct. 1922, *J.S. de la Cruz 2462* (AMES, NY).
FRENCH GUYANA: without locality, 1821, *Perrothet 112* (BR); 1856, *Sagot 868* (K); Savane-roche Dachine, Région de Saül, alt. 150 m, 7 Apr. 1997, *G. Cremers & F. Crozier 14779* (CAY); Mont Chauve, alt. 220 m, 13 Apr. 1997, *G. Cremers & F. Crozier 14936* (CAY).
TRINIDAD: Heights of Aripo, 10-26 Jan. 1922, *W.E. Broadway 9881* (AMES); Maracas, 7 Nov. 1924, *W.E. Broadway 5460* (AMES, K); Caparo, 18 Sept. 1908, *W.E. Broadway s.n.* (BM); Cocoa plantation, base of Mt. Tamana, 18 Apr. 1920, *N.L. Britton, E.G. Britton & T.E. Hazen 1963* (AMES, NY); Maraval, 25 Feb. 1926, *W.E. Broadway 5975* (AMES, BM); St. George, alt. 130 m, 22 July 1976, *Barnard, Jones & Crane 214a* (K).

VENEZUELA: **Carabobo**: Río San Gián, south of Borburata, alt. 350-500 m, 7 Aug. 1965, *J.A. Steyermark 94339* (AMES, K, VEN). **Amazonas**: Río Orinoco, below Cano Yapacana, alt. 125 m, 18 June 1959, *J.J. Wurdack & L.S. Adderley 43061* (AMES, NY). GUYANA: Karialo, "Dutch Place," 25 May 1897, *E.F. im Thurn 99* (K); Tum Creek, Oct. 1897, *E.F. im Thurn s.n.* (K); Essequibo River, Moraballi Creek, near Bartica, alt. near sea level, 19 Sept. 1929, *N.Y. Sandwith 305* (K); Upper Mazaruni District, Eboropu Mountain, alt. 470 m, 11 Apr. 1979, *P.J. Edwards 1236* (K).

BRAZIL: **Pará**: Macau airstrip on Rio Maicuru, alt. 800 m, 24 July 1981, *J.J. Strudwick et al. 3522* (K, NY).

COLOMBIA: **Cauca**; on *Crescentia* trees around Guapí, *F.C. Lehmann B.T. 349* (K). **Valle del Cauca**: Puerto Merizalde, Río Naya, alt. 5-20 m, 20-23 Feb. 1943, *J. Cuatrecasas 14049* (AMES).

ECUADOR: **Esmeraldas**: between Lita and San Lorenzo, alt. 60 m, 25 Jan. 1996, *A. Hirtz, X. Hirtz & J. Del Hierro 6270* (MO). **Pichincha**: orange trees behind Zaracay Hotel, Santo Domingo, alt. 675 m, Feb. 1975, *C. Luer & R. Kent 168* (SEL). **Napo**: hills south of Lumbaqui, alt. 850 m, 10 Feb. 1986, *C. Luer, A. Hirtz et al. 11760* (MO); south of Tena, alt. 580 m, 30 May 1986, *C.H. Dodson & T. A. Dodson 16474* (MO). **Morona-Santiago**: Río Upano 12 Km north of Macas, alt. 1100 m, 15 Jan. 1989, *C. Luer, A. Hirtz et al. 13924A* (MO).

PERU: **Loreto**: vicinity of Iquitos, alt. 100 m, Aug. 1937, *G. Klug 10129* (AMES).

PANAMA: **Chiriquí**: Boquete, alt. 3,800 ft., 24 May, 1938, *Davidson 708* (?).

COSTA RICA: **Alajuela**: San Pedro de San Ramón, alt. 1025 m, Nov. 1921, *A.M. Brenes 177* (holotype of *P. pauciflora* destroyed at B, lectotype: CR; isolectotype: AMES, NY); San Ramón, alt. 1125 m, Nov. 1921, *A.M. Brenes 171* (type of *P. pauciflora*); Upala, Bijagua, El Retiro, Río Tenorio, alt. 750 m, 22 July 1993, *G. Herrera 6330* (K). **Cartago**: La Fuente, alt. 1200 m, 30 July 1935, *A. Alfaro s.n.* (AMES).

CUBA: **Guantanamo**: Baracoa, orillas del Toa cerca de la Perrera, 20 Feb. 1978, *J. Bisse et al, s.n.* (HAJB); Imías, sur de Imías, falde oeste de la Loma de Majagua Hueca, alt. 600 m, 16 Apr. 1984, *J. Bisse et al., s.n.* (HAJB). **Holguín**: Mayarí, Sierra Cristal, 2-7 Apr. 1956, *Bro. Alain, J. Acuña & M. López F. 5470* (HAC, HAJB).

JAMAICA: Without locality, *J.P. Syme 2125* (NY); Fairfield, *Wullschlegel 1353* (M); without locality, *Purdie s.n.* (K); near Mabess River, alt. 3,500 ft., 12 Apr. 1900, *W. Harris 9011* (BM); Cascade, alt. 2,000 ft., 2 Apr. 1900, *W. Harris 7997* (BM). St. James, White Rock Hill south of Sweet Water, alt. 2,000-2,200 ft., 2 Dec. 1962, *G.R. Proctor 23004* (AMES, NY).

DOMINICAN REPUBLIC: near Cuevas de Cupey, alt. 150 m, 30 June 1887, *Eggers 2706* (M). **Samaná**: Peninsula de Samaná, Pan de Azucar, alt. 400-500 m, 4 May 1930, *E.L. Ekman 14862* (K, S); La Nevera, between Valle Nuevo and San José de Ocoa, alt. 2100 m, 30 May 1979, *A.H. Liogier 15483* (AMES, NY). **El Selbo**: Los Haitises, near mouth of Barracote River, 19 Mar. 1969, *A.H. Liogier 14506* (NY); Los Haitises, Monte Bonito, alt. 200-250 m, 6 Aug. 1985, *T. Zanoni et al. 35459* (NY); Samaná Peninsula, north of Sanchez, alt. 300-400 m, 17 Mar. 1969, *A.H. Liojier 14450* (NY); Bayaguana, Pilancón, alt. 200-300 m, 18 Apr. 1973, *A.H. Liojier 18869* (NY). **Barahona**: La Filipina, Finca Sucesión, alt. 800 m, 3 Jan. 1977, *A.H. Liogier 26159* (NY).

PUERTO RICO: near Maricao, 3 Dec. 1884, *P. Sintenis 504* (BR, K, LE, US, W); Sierra de Luquillo in Monte Jiménes, 29 May 1885, *P. Sintenis 1735* (AMES, BR, C, M, W); El Verde, 29 Jan. 1966, *R.O. Woodbury s.n.* (NY, UPR); El Verde, alt. 1500 ft., 30 May 1989, *R.O. Woodbury 3736* (UPR); Río Grande, Río Jiménez area, alt. 216 m, 26 Mar. 1989, *G.G. Ruiz 4* (UPRRP); San Germán, Maricao Forest Reserve, Sendero Santa, alt. 630 m, 21 Feb 1991, *J.D. Ackerman & R. Thomas 2700* (UPRRP); Río Grande: Luquillo mts., south of El Verde, alt. 250-290 m, 7 Feb. 1985, *J.D. Ackerman & F. Axelrod 2073* (UPRRP); Río Grande: Caribbean National Forest, Quebrada Sonadora, alt. 200-300 m, 25 Apr. 1992, *F. Axelrod, J.D. Ackerman & J. Zimmerman 4406* (NY, UPRRP).

GUADELOUPE: in Convalli St. Louis, alt. 760 m, 4 July 1898, *P. Duss 4012* (NY)

MARTINIQUE: Environs of Deux-Chous, Assizrare, Aug. 1900, *P. Duss 4489* (NY); Morne Rouge, Aug. 1901, *P. Duss 4619* (NY); Camp Balata, alt. 500 m, 6 Sept. 1937, *H. Stehlé 2493* (NY); alt. 700 m, 28 Sept. 1940, *H. & M. Stehlé 6462* (US); Morne Calebasse, north of Morne Rouge, alt. 650-760 m, 7 Dec. 1960, *G.R. Proctor 21714* (AMES).

ST. LUCIA: Upper Millet River, alt. 1750 ft., 11 Nov. 1938, *H.E. Box 1900* (BM); Vicinity of Quilesse, trail to Piton St. Esprit, 22 Apr. 1950, *R.A. Howard 11629* (AMES, NY); southeast of Soufriére, alt. 1400 m, 4 Apr.-12 June 1958, *G.R. Proctor 18136* (AMES); Belford Estate, alt. 1,400 ft., 7 Mar. 1986, *V. Slane & J. Richard 841* (AMES, St.L).

DOMINICA: Soufriere, 1903, *F.E. Lloyd 470* (NY); Imperial Road between Roseau and Pont Cassé, 20 July 1964, *R.L. Wilbur et al. 7896* (BM, US); Lisdara, alt. 457 m, 27 Aug. 1937, *W.H. Hodge 392* (AMES, NY); Lisdara, alt. 457 m, 30 Mar. 1940, *W.H. Hodge 2489* (NY); St. George, Bellevue, road to Rose Hill, alt. 550 m, 23 Oct. 1995, *M. Nir 45* (AMES, NY).

GRENADA in l'oncord valley, 19 Dec. 1889, *Eggers 6504* (C, US); without locality, 14 May 1891, *R.V. Sherring s.n.* (K); St. George's, Annandale, Mar. 1906, *W.E. Broadway s.n.* (AMES, BR, K, NY); Mirabean Mts., 20 Aug. 1906, *W.E. Broadway 2507* (BM, NY); Soullie, 30 Sept. 1940, *I. Vélez 3237* (K); St. John, Belvedere, alt. 1500 m, 30 Oct.-11 Dec. 1957, *G. R. Proctor 16969* (AMES, BM); St. Andrew: vicinity of Grand Etang, alt. 1600-1800 m, 30 Oct.-11 Dec. 1957, *G. R. Proctor 17041* (AMES, BM, US).

This little species is frequent and widely distributed through the Antilles, Central America and northern South America. Although it varies considerably in size, the morphology of the flowers remains reasonably constant. There are numerous illegible collections at W. Narrow, thickly coriaceous leaves are borne by slender ramicauls. The raceme bears simultaneously two to five small, light yellow-green flowers in a loose raceme. The petals are narrow, nearly as long as the sepals. The lip is triangular with obtuse angles.

Pleurothallis tanyrhina Luer & Escobar, Orquideología 14: 176, 1981.

Ety.: From the Greek *tanyrhinos*, "a long snout," in allusion to the elongated rostellum.

Plant medium in size, epiphytic, caespitose, roots slender. Ramicauls erect, slender, terete, 12-18 cm long, with a close, tubular sheath below the middle and another 1 or 2 at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 8-10 cm long, 1.7-2.3 cm wide, the base cuneate, sessile. **Inflorescence** 1-3 slender, erect, distichous, densely many-flowered racemes of small, greenish-white flowers, 12-14 cm long including the peduncle 3.5-7 cm long, from a spathe 10-14 mm long at the base of leaf; floral bract brown, broadly ovate, 2 mm long; pedicel curved, 2 mm long; ovary 1 mm long; **sepals** membranous, glabrous, the dorsal sepal ovate, subacute, deeply concave, 3 mm long, 2.5 mm wide, the lateral sepals connate into a subquadrate-ovate, concave lamina, 3 mm long, 2.5 mm wide, the apex obtuse, abruptly contracted into an obtuse apiculum; **petals** ovate, acute, 2 mm long, 0.8 mm wide, 1-veined; **lip** greenish white with light brown markings, suborbicular, concave, 2 mm long, 1.5 mm wide, the rounded apex shortly apiculate, the concavity viscid toward the base, microscopically short-pubescent above the base; **column** green, stout, semiterete, 1 mm long, the rostellum red, equally long, the anther-cap red, proportionately large, the foot broad, obsolescent.

COLOMBIA: **Antioquia**: Munic. of Sonsón, between Sonsón and Argelia, alt. 2500-2800 m, 30 Sept. 1973, collected by R. Escobar et al. 1006, cultivated by M. & O. Robledo at La Ceja, 17 Oct. 1977, *C. Luer 2082* (Holotype: SEL; Isotype: JAUM); Yarumal, along Río El Oro, alt. 2700 m, 1 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10066* (MO).

This species is apparently endemic in the northern part of the Central Cordillera of Colombia. It is similar to *P. divarivans* and relatives, but *P. tanyrhina* is distinguished by the dorsal sepal and synsepal with recurved tips; acute petals; a concave lip with a shortly acute, recurved tip; a proportionately large red anther-cap; and a long, red, protruding rostellum.

Pleurothallis uninervia Luer & Dodson, sp. nov.

Ety.: From the Latin *uninervis*, "one-nerved," referring to the sepals.

Species haec *P. divaricanti* (Barb.Rodr.) Luer affinis, sed habitu graciliore, sepalo dorsali non concavo, petalis ad apicem incrassatis et labello cordato-ovato differt,

Plant medium in size, epiphytic, caespitose; roots numerous, slender. Ramicauls slender, erect, 8-12 cm long, with a thin, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 6-9 cm long, 0.6-0.9 cm wide, the base sessile, narrowly cuneate. **Inflorescence** racemose, 1-3 erect, loose, simultaneously many-flowered racemes, 6-9 cm long including the peduncle ca. 1 cm long, subtended by a slender spathe 5 mm long at the base of the leaf; floral bracts 2 mm long; pedicel 2-2.5 mm long; ovary 2 mm long; **sepals** green, glabrous, the dorsal sepal ovate, subacute, 2 mm long, 1.25 mm wide, 1-veined, the lateral sepals completely connate into an ovate, shallowly concave, subacute synsepal, 2 mm long, 1.6 mm wide expanded, 2-veined; **petals** green, oblong, thickened at the obtuse apex, 1.25 mm long, 0.25 mm wide, 1-veined; **lip** green, cordate-ovate, obtuse, lightly concave, 1.25 mm long, 1.25 mm wide, the base truncate, attached to the base of the column; **column** terete, 0.8 mm long, the anther and the stigma apical, the foot obsolescent.

ECUADOR: **Esmeraldas**: between Lita and San Lorenzo, alt. 720-850 m, 13 May 1990, *C. Dodson, A. Gentry, B. Boyle & D. Rubio 18288* (Holotype: MO).

This species is one of the smallest-flowered species of the genus. The flowers are reminiscent of a species of *Platystele*. From the similar *P. divaricans*, this species is distinguished by the shallowly concave, single-veined dorsal sepal and two-veined synsepal. The petals are oblong and thickened toward the obtuse apex, and the lip is broadly cordate and shallowly concave without calli.

Pleurothallis xanthochlora Rchb.f., Linnaea 22: 823, 1849.

Ety.: From the Greek *xanthochloros*, "yellow-green," referring to the color of the flowers.

Syn.: *Humboldtia xanthochlora* (Rchb.f.) Kuntze, Rev. Gen. Pl. 668, 1891.

Syn.: *Pleurothallis huanucoënsis* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 75, 1921.
Ety.: Named for the Peruvian department of Húanuco where the species was collected.

Syn.: *Pleurothallis dolichocaulon* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 10: 43, 1922.
Ety.: From the Greek *dolichocaulon*, "long-stemmed." referring to the ramicaul.

Plant medium in size to large, epiphytic, repent, the rhizome 1-3 cm long between ramicauls; roots slender. Ramicauls slender to stout, erect, 15-35 cm long, with a tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical, acute, slightly acuminate, 12-20 cm long, 4.5-8 cm wide, the base cuneate, sessile. **Inflorescence** 1-4 erect, distichous, subdense, simultaneously many-flowered racemes, 15-30 cm long including the peduncle 3-7 cm long, subtended by a spathe ca. 1 cm long at the base of the leaf; floral bracts tubular, 3 mm long; pedicels 5-12 mm long; ovary 3 mm long; **sepals** translucent light green to light yellow-green, glabrous, the middle sepal elliptical-ovate, acute, 5-6 mm long, 2.5 mm wide, 3-veined, the lateral sepals completely connate into a concave, acute synsepal, 5-6 mm long, 3 mm wide, unexpanded, 4-veined; **petals** light green, narrowly linear-oblong, acute, 4-5 mm long, 0.6-0.8 mm wide, 1-veined; **lip** green, ovate, acute, 2.5-3 mm long, 1.75 mm wide, with the margins minutely irregular, the disc shallowly concave, minutely subverrucose toward the apex, the base subtruncate, shallowly concave on the end, attached to the base of the column; **column** stout, terete, 1.75 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

VENEZUELA: **Mérida**, 1844-45, *Moritz Wagner 1054* (Holotype: K; Isotype: AMES). **Zulia**: Sierra de Perijá, quebrada del Río Omira-kuná, alt. 1470-1500 m, 25 Mar. 1972, *J.A. Steyermark, G.C.K. & E. Dunsterville 105651* (AMES, VEN). *Lara*: Dist. Iribarren, cabeceras del Río Claro, alt. 1500 m, 11 Aug. 1970, *J.A. Steyermark, F. Delascio, G.C.K. & E. Dunsterville 103558* (AMES, VEN).
COLOMBIA: without locality, *Moritz 542* (AMES). **Cundinamarca**: falls near Bogotá, 1868, *Mr. Wier 210* (K); Río Bogotá, below Salto de Tequendama, alt. 2000 m, 15 July 1915, *M. Schneider 44* (AMES, S).
ECUADOR: **Carchi**: west of the pass between Tulcán and Maldonado, alt. 1600 m, 16 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15092* (MO). **Pastaza**: Río Agoyán, Nov. 1859, *R. Spruce 6111* (K, W). **Pichincha**: Western slopes of the Andes, *W. Jameson 7* (K); Volcán Pululaqua, alt. 2500 m, 10 June 1876, *E. André 3738* (K). **Tungurahua**: Tungurahua, alt. 2300 m, 1 Nov. 1879, *F.C. Lehmann 345* (W).
PERU: **San Martín**: Zepelacio near Moyabamba alt. 1200-1600 m, Dec. 1933, *G. Klug 3422* (AMES, K); Rioja, Pardo Miguel, between Paraiso and Perla del Mayo to Aguas Verdes, alt. 1080 m, 18 June 1998, *I. Sánchez V. et al 9426* (CPUN, MO). **Cuzco**: Convención, alturas de Pintobamba, alt. 2700 m, *C. Vargas 3541* (AMES, CUZ); Convención, along Río Mapituriani, alt. 1000 m, 14 Sept. 1976, *D.C. Wasshausen & F. Encarnación 657* (K, US); without locality, alt. 2000 m, collected by Antonietta Vargas, 31 Jan. 1987, *D. Bennett 4008* (MO); La Merced, alt. 2,000 ft., Oct. 1941, *J.F. Macbride 5533* (AMES, F); Urubamba, Machu Picchu, near railroad station, alt. 2000 m, 4 June 1972, *G. Müller & C. Müller 2835* (LZ). **Junín**: Eneñas, Pichis trail, alt. 1600-1900 m, 30 June-2 July 1929, *E.P. Killip & A.C. Smith 25662* (AMES, US). **Ayacucho**: Aina, between Huanta and Río Apurimac, alt. 750-1000 m, 7-17 May 1920, *E.P. Killip & A.C. Smith 23166* (AMES, US).
BOLIVIA: **La Paz**: Without specific locality, *A.M. Bang 2240* (holotype of *P. dolichocaulon*: K; isotypes: AMES, M, NY, US); "Yungas," alt. 6,000 ft., 1885, *H.H. Rusby 2755* (AMES); Sur Yungas, Calisaya, Río Bopi, alt. 1800 m, July 1933, *M. Cárdenas 1369* (AMES); same area, alt. 750-900 m, 1-22 July 1922, *B.A. Krukoff 10341* (AMES, NY); Nor Yungas, Alto Beni, alt. 950 m, 1 Sept. 1991, *C. Luer, J. Luer, R. Vásquez & L. Moreno 15396* (MO). **Cochabamba**: Carrasco, Sehuencas, alt. 2100 m, 26 June 1993, *P. Ibisch 93.0460* (MO).

This species is widely distributed from western Venezuela through the Andes into Bolivia. The long ramicauls are produced along a stout, shortly creeping rhizome. The many-flowered racemes arise from the cuneate base of a large, elliptical leaf. The synsepal is concave, but not deeply so; the petals are narrow, but not thickened; and the lip is ovate, shallowly concave, and subverrucose at the acute apex. The base is truncate and shallowly concave on the end.

SUBSECTION *MACROPHYLLAE-RACEMOSAE*

Pleurothallis subgen. **Pleurothallis** sect. **Pleurothallis** subsect. **Macrophyllae-Racemosae** (Lindl.) Luer, Monogr. Syst. Bot. 20: 61, 1986.

Type: *Pleurothallis lindenii* Lindl.

Bas.: *Pleurothallis* sect. *Macrophyllae-Racemosae* Lindl., Folia Orchid. *Pleuroth.* 7, 1859.

Ety.: From the Greek *makrophyllos*, "a large leaf," and the Latin *racemosus*, "racemose," referring leaf and the inflorescence.

Plants perennial, small to large in size, normally epiphytic to terrestrial, caespitose to repent; roots coarse to slender. Ramicauls erect to suberect, sometimes prolific, terete, elongate, non-pseudobulbous, unifoliate, with a closely fitting, tubular sheath below the middle and 2-3 other sheaths at the base. **Leaf** erect to suberect, coriaceous, smooth, narrowly or broadly elliptical to ovate, the apex acute to subacute, shallowly notched with a mucro in the sinus, the base sessile, petiolate or subpetiolate, abruptly or cuneate into the petiole or base. **Inflorescence** racemose or single-flowered, usually pendent, the flowers usually non-resupinate, variously colored, borne by a slender peduncle that emerges from the apex of the ramicaul at the base of the leaf, or laterally from the ramicaul a short distance below the apex, with a reclining, usually inconspicuous spathe; floral bracts thin, infundibular or tubular, acute; pedicels usually exceeding the floral bract; ovary smooth, trivalvate; **sepals** glabrous, membranous, acute, subacute or obtuse, to acuminate, the dorsal sepal free from the lateral sepals, the lateral sepals completely connate into a shallowly concave to a deeply cucullate synsepal; **petals** more or less thickened, linear, oblong to ovate, acute to acuminate, entire to serrulate; **lip** ovate to variously trilobed, the lobes basal, rounded, obtuse, surrounding or embracing the column, with a variously developed pair of calli at the base of the disc or on the basal lobes, the base usually inflexibly attached to the thickened base of the column-foot; **column** terete, non-winged, the anther apical and the stigma apical or subapical, pollinia 2, obovoid, with a microscopic viscidium, the base of the column thickened with the apex of the ovary.

The first species attributable to subsection *Macrophyllae-Racemosae* was described as *Pleurothallis hartwegii* by Lindley in 1842 from an Ecuadorian collection by Hartweg. In 1843, Lindley added *P. lindenii* from a Colombian collection by Linden. He added three more species (*P. archidonae, P. bicornis* and *P. geniculata*, a superfluous, new name for *P. hartwegii*) attributable to the subsection in 1859. Reichenbach described none. At present 37 species are known. They are widely distributed in humid forests of the Andes of South America. None is known from Central America, the Antilles and Brazil. This subsection and subsection *Antenniferae* are similar to each other in many respects, making decisions to which subsection a few species belong uncertain. Questionable species should be tried in the keys of both subsections.

Subsection *Macrophyllae-Racemosae* is characterized by a caespitose or rarely repent habit with well-developed ramicauls that are usually longer than the leaf, which is either sessile or petiolate. The inflorescence is either single-flowered or racemose, borne terminally at the base of a sessile leaf or laterally from the ramicaul a short distance below the abscission layer. The single flowers as well as the racemes are usually pendent. The flowers are basically similar and usually non-resupinate. As in the other subsections, the dorsal sepal is free from the laterals, and the lateral sepals are connate into a concave or cucullate synsepal. The petals are oblong to ovate, more or less thickened, and entire to denticulate. The lip is variously three-lobed with basal lobes flanking or encircling the column, and with a pair of calli on the disc. A glenion, the rounded structure often found above the base of the lip of pleurothallids, is not usually developed. The base is attached to a thickened, abbreviated column-foot. The column is semiterete, usually short, with the anther and stigma apical or subapical.

Two series were proposed (Luer, 1988): series *Inflatae* for single-flowered species and series *Macrophyllae-Racemosae* for racemose species. They will not be recognized because most few-flowered species may produce but a single flower.

BINOMIALS PUBLISHED IN *PLEUROTHALLIS* REFERABLE TO SUBSECTION *MACROPHYLLAE-RACEMOSAE*

Pleurothallis amplectens Luer ..... Fig. 48.
Pleurothallis andrei Luer & Escobar = **P. lindenii**
Pleurothallis araguensis Ames = **P. lindenii**
Pleurothallis archidonae Lindl. ..... Fig. 49.
Pleurothallis archidonopsis Luer & Hirtz ..... Fig. 50.
Pleurothallis bicornis Lindl. ..... Fig. 51.
Pleurothallis cachabensis Luer & Hirtz ..... Fig. 52
Pleurothallis cajamarcae Schltr. ..... Fig. 53.
Pleurothallis calvariola Luer & Escobar ..... Fig. 54.
Pleurothallis capitonis Luer & Escobar ..... Fig. 55.
Pleurothallis chuscalica Luer ..... Fig. 56.
Pleurothallis colossus Kraenzl. ..... Fig. 57.
Pleurothallis cornualis Luer ..... Fig. 58.
Pleurothallis cotyligera Luer & Escobar ..... Fig. 59.
Pleurothallis crescentilabia Ames ..... Fig. 60.
Pleurothallis decora Luer & Escobar= **P. nutans**
Pleurothallis dorrii Luer ..... Fig. 61.
Pleurothallis elvirana Carnevali & Ramírez ..... Fig. 62.
Pleurothallis geniculata Lindl. = **P. hartwegii**
Pleurothallis hartwegii Lindl. ..... Fig. 63.
Pleurothallis hemispherica Luer & Escobar ..... Fig. 64.
Pleurothallis henniae Luer & Dalström ..... Fig. 63.
Pleurothallis hirtzii Luer = **P. colossus**
Pleurothallis imber-florum Luer & Escobar ..... Fig. 66.
Pleurothallis inflata Rolfe ..... Fig. 67.
Pleurothallis jaculifera Luer & Escobar ..... Fig. 68.
Pleurothallis lamellaris Lindl. ..... Fig. 69.
Pleurothallis lindenii Lindl. ..... Fig. 70.
Pleurothallis lindenii var. *gigantea* Rchb.f. = **P. subreniformis**
Pleurothallis lindenii var. *pumila* Rchb.f. = **P. inflata?**
Pleurothallis loxensis Luer & Hirtz = **P. lamellaris**
Pleurothallis magnifica Luer & Escobar ..... Fig. 71.
Pleurothallis megalotis Luer & Hirtz ..... Fig. 72.
Pleurothallis mundula Luer & Escobar ..... Fig. 73.
Pleurothallis nutans Schltr. ..... Fig. 74.
Pleurothallis orthostachys Luer & Escobar ..... Fig. 75.
Pleurothallis pelex Luer ..... Fig. 76.
Pleurothallis pendula Schltr. = **P. lindenii**
Pleurothallis phratria Luer & Hirtz. ..... Fig. 77.
Pleurothallis praegrandis Ames = **P. colossus**
Pleurothallis pulcherrima Luer ..... Fig. 78.
Pleurothallis saccata Ames = **P. colossus**
Pleurothallis serpens Luer & Escobar ..... Fig. 79.
Pleurothallis silvestris Luer & Hirtz = **P. calvariola**
Pleurothallis steyermarkii C.Schweinf. ..... Fig. 80.
Pleurothallis strobilifera Lehm. & Kraenzl. ..... Fig. 81.
Pleurothallis subreniformis Schltr. ..... Fig. 82.
Pleurothallis torrana Luer ..... Fig. 83.
Pleurothallis uvifera Luer & Escobar ..... Fig. 84.

KEY TO THE SPECIES OF SUBSECTION *MACROPHYLLAE-RACEMOSAE*

1 Leaves broadly cuneate to cordate....2
1' Leaves narrowly cuneate or acuminate into a petiole....13

2 Leaves broadly cuneate with the margins at the base at the level of the spathe....3
2' Leaves cordate with margins at the base curved below the level of the spathe....9

3 Raceme with more than 15 flowers....*P.imber-florum*
3' Raceme with fewer than 10 flowers....4

4 Petals fimbriate; lip with a pair of hornlike basal calli....*P. cornualis*
4' Petals not fimbriate; lip not with hornlike basal calli....5

5 Petals minutely papillose; lip verrucose....*P. cajamarcae*
5' Petals glabrous; lip not verrucose....6

6 Petals narrowly acute above a lobe below the middle; lip fimbriate....*P. bicornis*
6' Petals ovate, acute; lip entire....7

7 Leaf narrowly ovate; inflorescence 1-flowered....*P. pelex*
7' Leaf broadly ovate; inflorescence more than 1-flowered....8

8 Sepals less than 8 mm long....9
8' Sepals more than 12 mm long....10

9 Petals clavate....*P. colossus*
9' Petals not clavate....*P. pulcherrima*

10 Petals thickly oblong, adherent to each other....*P. lamellaris*
10' Petals not thickly oblong and adherent to each other....11

11 Petals deeply fringed; lip with a pair of small, hornlike calli....*P. cachabensis*
11' Petals minutely serrate; lip without hornlike calli....12

12 Raceme erect; lip concave between round, basal calli....*P. orthostachys*
12' Raceme pendent; lip not concave, basal calli, low, obscure....*P. torrana*

13 Leaf narrowly cuneate....14
13' Leaf distinctly acuminate into a petiole....23

14 Petals 4- to 6-veined....*P. capitonis*
14' Petals 3-veined....15

15 Petals thick, hemispherical above the middle and adherent to each other....*P. hemispherica*
15' Petals not hemispherical and adherent to each other....16

16 Inflorescence 1- to 3-flowered....17
16' Inflorescence 4- or more-flowered....20

17 Lip with broadly rounded lateral lobes without calli....*P. inflata*
17' Lip without broadly rounded lateral lobes, with calli....18

18 Lip with low, rounded calli on the margins of the lateral lobes....*P. chuscalica*
18' Lip with erect calli, not marginal....19

19 Lip minutely denticulate, with a pair of rounded calli.....*P. hartwegii*
19' Lip entire, with a pair of hornlike calli.....*P. archidonae*

20 Sepals more than 19 mm long; lip acutely recurved at the middle.....*P. magnifica*
20' Sepals less than 15 mm long; lip acutely recurved at the base.....21

21 Sepals 10-15 mm long; lip with short, basal lobes.....*P. lindenii*
21' Sepals less than 10 mm long; lip with elongate, basal lobes.....22

22 Lip minutely verrucose, with the calli low, pointed.....*P. henniae*
22' Lip smooth, with the calli low, obscure.....*P. jaculifera*

23 Plant prolific.....*P. amplectens*
23' Plant not prolific.....24

24 Inflorescence 1-flowered.....25
24' Inflorescence 2- or more-flowered.....28

25 Lip with middle lobe concave, lateral lobes pedunculate.....*P. megalotis*
25' Lip not with the lateral lobes pedunculate.....26

26 Lip concave, truncate at the base without lobes.....*P. archidonopsis*
26' Lip convex with elongate, basal lobes.....27

27 Petals 1 mm wide; lip with low, rounded calli at the base of the basal lobes.....
.....*P. crescentilabia*
27' Petals 4-5 mm wide; lip with small, rounded calli on the basal lobes.....*P. uvifera*

28 Plant long-repent.....*P. serpens*
28' Plant not long-repent.....29

29 Lip acutely deflexed against itself above the middle.....*P. calvariola*
29' Lip acutely deflexed only at the base.....30

30 Lip with the middle lobe distinct from obtusely angled basal lobes.....31
30' Lip with the middle lobe not distinct from the basal lobes.....32

31 Lip with the middle lobe longer than the basal lobes.....*P. steyermarkii*
31' Lip with the middle lobe shorter than the basal lobes.....*P. cotyligera*

32 Leaf obovate, obtuse; lip acute.....*P. mundula*
32' Leaf elliptical, acute or acuminate; lip obtuse.....33

33 Lip with basal lobes flanking, not encircling, the column.....34
33' Lip with basal lobes encircling the column.....35

34 Raceme loosely 2- to 3-flowered.....*P. phratria*
34' Raceme congested, 3- to 4-flowered.....*P. nutans*

35 Lip orbicular with broad, basal lobes encircling the column.....*P. dorrii*
35' Lip cordate with basal lobes encircling the column.....36

36 Leaves 8-10 cm wide, acuminate at the tip.....*P. subreniformis*
36' Leaves 2-3 cm wide, acute at the tip.....*P. strobilifera*

Pleurothallis amplectens Luer, Phytologia 47: 73, 1980.

Ety.: From the Latin *amplectens*, "clasping," referring to the lobes of the lip embracing the column.

Plant medium-sized to large, epiphytic, scandent; roots slender, fasciculate. Ramicauls slender, erect, 4-12 cm long, with a close, tubular sheath below the middle and another at the base, proliferating another ramicaul from the site of the inflorescence. **Leaf** coriaceous, erect, petiolate, narrowly elliptical, 6-10 cm long including a petiole 1-1.5 cm long, 1.5-2 cm wide, the apex acute, slightly acuminate, the base cuneate into the petiole. **Inflorescence** a solitary, long-pedunculate, drooping flower, borne from a spathe 8-9 mm long, below the abscission layer; peduncle slender 20-22 mm long; floral bract 5-6 mm long; pedicel 9-10 mm long; ovary 5 mm long; **sepals** yellow-green, the middle sepal narrowly ovate, acute, 11 mm long, 5 mm wide, 3-veined, the lateral sepals connate completely into an ovoid, obtuse, deeply concave synsepal, 10 mm long, 8 mm wide unexpanded, 12 mm wide expanded, 6(8)-veined; **petals** linear, acute, 10 mm long, 1.25 mm wide, 3-veined, thickened near the apex; **lip** yellow, obscurely three-lobed, trapeziform, cannot be expanded without fracturing, 5 mm long, 8 mm wide unexpanded, 12 mm wide expanded, the apex subtruncate, minutely denticulate, deflexed, the sides erect, subacutely angled, slightly convex, with erect, rounded basal lobes surrounding the column, the base acutely deflexed below a blunt, conical callus, firmly hinged to the base of the column; **column** cylindrical, 2.5 mm long, the anther and single-lobed stigma apical, the foot rudimentary.

ECUADOR: **Morona-Santiago**: terrestrial on road embankment, east of the pass between Gualaceo and Limón, alt. 2900 m, 17 Sept. 1980, *C. Luer & J. Luer 5458* (Holotype: SEL); between Gualaceo and Limón, alt. 1900-2000 m, 22 Mar. 1974, *G. Harling & L. Andersson 12737* (GB); epiphytic in cloud forest east of Gualaceo, alt. 2500 m, 28 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10998* (MO). **Azuay**: large, much-branched colonies scrambling over steep banks, along quebradas leading into Río Collay, north of Sevilla de Oro, alt. 7,000-8,300 ft., 27 Aug. 1945, *W.H. Camp E-5001* (AMES, NY, S); Río Panjón, northeast of Sevilla de Oro, alt. 2600 m, 19 June 1979, *B. Løjtnant, A. & U. Molau 15160* (AAU, GB).
COLOMBIA: **Nariño**: Alto del Cabano, Andes of Pasto, 4 May 1876, *E. André 2972* (K); Páramo Chimbalay, *E. André s.n.* (K).

Although superficially similar to *P. eccentrica* with which it is sympatric, this species is remarkable for the scandent habit and solitary, drooping flowers. The sepals and petals of both species are similar, but the lips are distinctly different. The subacutely angled sides of the lip of *P. amplectens* are rigidly erect, the truncate apex is deflexed, and basal lobes surround the column.

Pleurothallis archidonae Lindl., Folia Orchid. *Pleurothallis* 15, 1859.

Ety.: Named for the community of Archidona where the first recorded collection was made.

Syn.: *Humboldtia archidonae* (Lindl.) Kuntze, Rev. Gen. Pl. 667, 1891.

Plant large, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls stout, erect, 20-65 cm long, with a close, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 12-25 cm long, 3-4.5 cm wide, narrowly cuneate below into the sessile base. **Inflorescence** 1 or 2, 1- or loosely 2-flowered racemes, ca. 1 cm long including the peduncle ca. 0.5 cm long, produced in a fascicle at the base of the leaf, with a fugacious spathe 1-1.5 cm long; floral bracts infundibular, 3-4 mm long; pedicels 4 mm long; ovary 7 mm long; flowers non-resupinate: **sepals** translucent light yellow, with purple spots, glabrous, the middle sepal elliptical, subacute, 11 mm long, 5 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, cymbiform, obtuse synsepal, 11 mm long, 8 mm wide unexpanded, 6-veined; **petals** cream, mottled with purple, glabrous, elliptical, oblique, acute, 9 mm long, 3.5 mm wide, 3-veined; **lip** yellow, thick, suborbicular-trilobed, 3.5 mm long, 3.75 mm wide, with the apex broadly rounded, entire, the basal lobes narrowly rounded, erect, surrounding the column, the disc shallowly sulcate centrally between a pair of blunt, hom-like calli at either side of the base, the base acutely deflexed, connected to the obsolescent column-foot; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR; **Napo**: forest near Archidona, on rocks by the river side, *W. Jameson s.n.* (Holotype: K); below Baeza, 11 Aug. 1978, *C. Luer, J. Luer & A. Hirtz 3241* (SEL); environs of Cosanga between Baeza and Tena, 13 Dec. 1976, *E. W. Davis 351* (S); Río Quijos north of Baeza toward Lumbaqui, alt. 1850 m, 8 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11703* (MO); Cosanga, 13 Aug. 1991, *A. Hirtz & S. Ortega 5403* (MO).

This large species is characterized by a long, stout ramicaul; narrowly elliptical, acute leaf; and at the base of the leaf a fascicle of old inflorescences from which a single flower that is usually followed by a second in a very short raceme is borne. The flower is pendent and non-resupinate. The synsepal is cucullate above the middle sepal and parallel petals. The lip is suborbicular with basal lobes surrounding the column. A pair of hornlike calli protrude from the disc at the base. Lindley described the pair as "two-lobed humps," but he is including the basal lobes of the lip. Closely allied to *P. hartwegii*, this species differs with calli longer and more slender, and the apex of the lip rounded.

Pleurothallis archidonopsis Luer & Hirtz, sp. nov.

Ety.: Named for a superficial similarity to *P. archidonae* Lindl.

Species haec *P. archidonae* Lindl. similis, sed labello transverse subquadrato concavo con callis planis triangularibus supra basin differt.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls erect, 15-20 cm long, with a tubular sheath below the middle, and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical, acute, slightly acuminate, petiolate, 17-21 cm long including the petiole, 3-4.5 cm wide, the base cuneate into the slender petiole. **Inflorescence** a very short, arching, simultaneously 2-flowered raceme, ca. 1 cm long including the peduncle ca. 0.5 cm long, the spathe fugacious, at the base of the petiole; floral bracts infundibular, 5 mm long; pedicels 3-4 mm long; ovary 4 mm long; flowers non-resupinate; **sepals** translucent light green with purple stripes along the veins, glabrous, the middle sepal narrowly ovate, acute, 12 mm long, 3.5 mm wide, 3-veined, the lateral sepals completely connate into an ovoid, deeply concave, subacute to narrowly obtuse synsepal, 12 mm long, 7 mm wide unexpanded, 2 mm deep, 6-veined; **petals** thick, elliptical, acute, 10 mm long, 3 mm wide, 3-veined; **lip** transversely subquadrate, 3 mm long, 5 mm wide, concave, with the apex broadly rounded, shallowly retuse, recurved below the middle with rounded margins, the disc with flat, triangular calli that fill both basal angles, the base truncate, abruptly reflexed, solidly attached to the base of the column; **column** terete, 2 mm long, footless, the anther and the narrowly transverse stigma apical.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, epiphytic in forest east of Mayaicu, alt. 1500 m, *C. Luer, A. Hirtz, W. Flores, A. Andreetta, & W. Teague 13518* (Holotype: MO).

This species is apparently endemic in the Cordillera del Condor in southeastemmost Ecuador. In habit it is similar to *P. archidonae* and some other members of subsection *Macrophyllae-Racemosae*, but the lip and column suggest subsection *Pleurothallis*. A very short, two-flowered raceme is borne at the base of a narrowly petiolate leaf. The flowers are non-resupinate and striped with purple. As in both subsections, the synsepal is broad and deeply concave. The petals are large, elliptical and acute. The lip is transverse and concave with broad, flat, triangular calli filling the corners of the lip below the middle. As in subsection *Pleurothallis*, the terete column is above and not clasped by basal lobes of the lip.

Pleurothallis bicornis Lindl., Folia Orchid. *Pleurothallis* 7, 1859.

Ety.: From the Latin *bicornis*, "two-horned," referring to the pair of petals.

Syn.: *Humboldtia bicornis* (Lindl.) Kuntze, Rev. Gen. Pl. 667, 1891.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 35-75 cm long, with a close, tubular sheath below the middle and 2-3 others at the base, occasionally proliferating another ramicaul from the apex. **Leaf** erect, coriaceous, elliptical, acute, 15-22 cm long, 4-9.5 cm wide, cuneate below into the sessile base. **Inflorescence** 1 to 7 arching, lax, several-flowered racemes, 10-18 cm long including the peduncle ca. 5 cm long, produced from a spathe 1.5-2 cm long at the base of the leaf; floral bracts infundibular, 5-13 mm long; pedicels 8-12 mm long; ovary 6-7 mm long; flowers non-resupinate; **sepals** translucent white, light green or light yellow, with dark purple, brown or red spots or stripes along the veins, sometimes completely yellow, glabrous, the middle sepal narrowly ovate, acute, 13-17 mm long, 3.5-6 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, cymbiform, acute synsepal, 13-17 mm long, 8 mm wide unexpanded, 14-16 mm wide expanded, 6-veined; **petals** yellow, suffused with purple, cellular-glandular, thick, narrowly ovate, oblique, acute, 12-16 mm long, 2.75-3.5 mm wide, 3-veined, protuberant in apposition, and usually adherent to each other in the distal two-thirds,

with a rounded swelling on the outer margin above the base; **lip** brown, black, yellow or green, thick, suborbicular-trilobed, 3.5-4 mm long, 4-5 mm wide, with the apex broadly rounded, denticulate-erose, or fimbriate, the basal lobes rounded, erect, flanking the column, the disc shallowly concave, with a comparatively large pair of rounded calli at the base, the base shortly acutely reflexed, connected to the obsolescent column-foot; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Napo**: forests on the eastern slope of the Andes, alt. 9,000 ft., *W. Jameson s.n.* (Holotype: K); same area, below Papallacta, alt. 2800 m, 28 Apr. 1978, *C. Luer, J. Luer & A. Hirtz 3421* (SEL). **Carchi**: between Tulcán and Maldonado, alt. 1950 m, 4 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9907* (MO); terrestrial on road embankment east of Maldonado, alt. 1550 m, 17 Mar. 1991, *C. Luer, J. Luer, J. Del Hierro, A. & X. Hirtz 15122* (MO); east of Maldonado, alt. 2080 m, collected July 1991, flowered in cultivation in Chamblee, GA, 29 Nov. 1991, *F L Stevenson 91-1029-4* (MO); between Maldonado and Chical, alt. 1400 m, collected July 1991, flowered in cultivation in Chamblee, GA, 15 Jan. 1993, *F L Stevenson 93-0116-3* (MO); scrub forest north of El Playón, alt. 3100 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15198* (MO); near Santa Bárbara, alt. 2700 m, , 15 July 1955, *E. Asplund 16957* (AMES, S); south of Santa Bárbara, alt. 2700 m, 6 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & X. Hirtz 11103* (MO). **Sucumbíos**: between El Carmelo and La Bonita, alt. 2200-2350 m, 11 Apr. 1979, *B. Løjtnant, U. Molau & M. Madison 12236* (AAU, GB); between El Carmelo and La Bonita, alt. 2800 m, 8 Apr. 1979, *B. Løjtnant, U. Molau & M. Madison 12035* (AAU, GB); same area, alt. 2900 m, Aug. 1990, *A. Hirtz, X. Hirtz, J. Del Hierro & F. Sarmiento 4992* (MO). **Tungurahua**: terrestrial on slopes of Tungurahua above Baños, alt. 2700 m, 27 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9768* (MO). **Zamora-Chinchipe**: south of the pass south of Jimbura, alt. 3050 m, 21 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 12013* (MO).
COLOMBIA: **Norte de Santander**: Alto de San Francisco, above Villacaro, alt. 2850 m, 11 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10266* (MO). **Antioquia**: Cerro Padre Amaya, alt. 2950 m, 16 Jan. 1979, *C. Luer, J. Luer, R. Escobar et al. 3697* (SEL); north of Santa Rosa de Osa, alt. 2580 m, 14 Mar. 1989, *C. Luer, J. Luer, S. Dalström & W. Teague 14147* (MO). **Chocó**: south of the pass between Urrao and Carmen de Atrato, alt. 2700 m, 30 May 1995, *C. Luer, J. Luer, R. Escobar et al. 17630* (MO).

This large species is variable in its wide distribution in moist forests at altitudes from 1500 to over 3000 meters above sea level from western Venezuela, through Colombia and Ecuador into Peru. It is similar to the sympatric and closely related *P. lindenii*, and the two have often been mistaken for each other. Dunsterville's illustration, published in the *Field Guide of the Orchids of Venezuela* and erroneously identified as *P. secunda*, is appears to be a mixture of *P. bicornis* and *P. lindenii*.

Pleurothallis bicornis is a large, robust species characterized by a long, stout ramicaul that bears a large, acute, sessile leaf, and one or a few loosely flowered, arching racemes of large flowers that are heavily spotted or striped in dark purple. Between the narrow middle sepal and the broad, deeply concave synsepal the pair of narrowly acute petals protrudes straight forward as one with their medial margins parallel, in apposition, or adherent to each other. The apex of the lip is broadly rounded and variously denticulate-fringed. *Pleurothallis lindenii* is usually smaller, the middle sepal is proportionately broader, the broader petals spread from beneath the synsepal, and the apex of the lip is subacute or obtuse and entire.

Although most specimens of *P. bicornis* are larger, dried specimens of the two species are often indistinguishable without hydrating a flower.

Pleurothallis cachabensis Luer & Hirtz, Lindleyana 3: 137, 1988.

Ety.: Named for the community of Cachabi, near the locality where this species was discovered.

Plant large, epiphytic, caespitose; roots slender, densely fasciculate. Ramicauls slender, erect, 35-45 cm long, with close, tubular sheaths above the base. **Leaf** erect, coriaceous, ovate, acute, acuminate, 14-16 cm long, 4.5-7.5 cm wide, the base sessile, cordate. **Inflorescence** a loose, pendent raceme 2-3 cm long of 3-4 non-resupinate flowers, borne by a weak, drooping peduncle ca. 4 cm long, from a reclining spathe 10-12 mm long, at the base of the leaf; floral bract 5 mm long; pedicel 4 mm long; ovary 6-7 mm long; **sepals** pale translucent rose, the middle sepal ovate, acute, 15 mm long, 4.25 mm wide, 3-veined, the lateral sepals connate into an ovoid, obtuse, deeply inflated synsepal, 15 mm long, 12 mm wide expanded, 6- to 8-veined; **petals** rose, oblong, oblique, acute, 11 mm long, 3.5 mm wide, 3-veined, the

margins fimbriate, the base subunguiculate; **lip** ivory, transversely oblong, 5 mm long, 6.5 mm wide, the margins minutely fimbriate, disc with a pair of erect, hornlike calli, held to either side of the column, the base subtruncate, acutely reflexed, hinged to the base of the column; column stout, terete, 2 mm long, the anther and single-lobed stigma apical, the foot rudimentary.

ECUADOR: **Imbabura**: epiphytic in wet forest south of Lita toward Cachabi, alt. 1250 m, 19 Jan. 1987, *C. Luer, J. Luer, A. Hirtz, C.H. Dodson, D. Benzing & D. Bermudes 12446* (Holotype: MO); hills by Santa Rosa de Cachaco, south of Lita, alt. 1000-1500 m, 20 Jan. 1987, *A. Hirtz 3062* (MO).

This large, robust species is allied to *Pleurothallis cornualis*, which is known from farther south and at a higher altitude, also on the western declivity of the Andes but separated by a wide, arid valley. *Pleurothallis cachabensis* is identified by the short, drooping raceme of pale rose, non-spotted, translucent flowers. The synsepal is deeply concave; the large, protruding petals are fimbriate; and the lip is transversely oblong and minutely fimbriate with a pair of erect basal horns.

Pleurothallis cajamarcae Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 73, 1921.

Ety.: Named for the department of Cajamarca where the species was collected.

Plant large, presumably epiphytic, caespitose; roots slender. Ramicauls slender, erect, to 55 cm long. **Leaf** erect to suberect, coriaceous, oblong-ovate, acute, to 20 cm long, 5 cm wide at the middle, the base sessile, subrounded (broadly cuneate). **Inflorescence** 2 to 4 loose, pendent, 5- to 8-flowered racemes to 10 cm long including the peduncle, from the base of the leaf; floral bracts shortly acuminate with pedicels equally long; ovary 8 mm long; **sepals** pale brown with dark stripes, the middle sepal narrowly oblong, acute, concave, 11 mm long, 3-veined, the lateral sepals connate into an ovate, concave synsepal, 11 mm long; **petals** narrowly falcate-ovate, acute, minutely papillose, 9 mm long, 1-veined; **lip** obovate, broadly rounded at the apex with irregular margins, 4 mm long, acutely reflexed above the base, hinged to the base of the column; column stout, short, the anther and stigma apical, the foot rudimentary.

PERU: Huambas, alt. 2400-2500 m, May 1904, *A. Weberbauer 4202* (Holotype destroyed at B, no isotype located).

This species is known only from Schlechter's original description and sketch, from which the above description and following illustration were drawn. The holotype was destroyed at Berlin (B), and no isotypes have been found. A "depressed, obtuse and apiculate" callus is described as present on the lip, but I believe that the crude drawing has been misinterpreted. Instead of a callus, the structure shown on the lip appears to be the reflection of the base of the lip.

Pleurothallis calvariola Luer & Escobar, Orquideología 14: 136, 1981.

Ety.: From the Latin *calvariola*, "a little skull," in allusion to the synsepal.

Syn.: *Pleurothallis silvestris* Luer & Hirtz, Lindleyana 11: 184, 1996.

Ety.: From the Latin *silvestris*, "of the forest," referring to Selva Alegre.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls slender, erect, 30-40 cm long, with a tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 14-17 cm long, 3-4 cm wide, cuneate below into a petiole ca. 1 cm long. **Inflorescence** a pendent, few-flowered raceme, 3-4 cm long, produced from a spathe 1 cm long below the base of the leaf; peduncle slender, arcuate, ca. 1 cm long; floral bracts infundibular, 6 mm long; pedicels 4-5 mm long; ovary 5 mm long; **sepals** glabrous, the middle sepal ovate, acute, 13 mm long, 4 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, cymbiform, acute, acuminate synsepal, 13-14 mm long, 8 mm wide unexpanded, 6-veined; **petals** thick, glabrous, very narrowly ovate, acute, 11-12 mm long, 1.5 mm wide, 3-veined; **lip** thick, trilobed, 2.5 mm long, 4 mm wide, 3.5 mm deep, with the apical lobe transverse, obtuse, sharply reflexed against the base, with lateral angles narrowly rounded, diverging, with narrowly rounded basal lobes surrounding the column, the disc shallowly sulcate between a pair of low, rounded calli above the base, the base acutely deflexed, connected to the obsolescent column-foot; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

COLOMBIA: **Cauca**: San Sebastian, cold forest between La Vega and Páramo de Barbillas, alt. 3070 m, 27 July, 1978, *C. Luer, J. Luer J. Kuhn & R. Escobar 3056* (holotype of *P. calvariola*: SEL). **Norte de Santander**: Alto de San Francisco, alt. 2850 m, 11 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10278* (MO).

ECUADOR: **Carchi**: Bolívar, above La Paz, north road, alt. 3100 m, 18 Feb. 1998, *C. Luer, J. Luer, A. Hirtz & J. del Hierro 18735* (MO). **Imbabura**: Alegria, east of Volcán Cayambe, alt. 9,200 ft., 13 May 1944, *W.B. Drew E-239* (AMES); Selva Alegre, alt. 2000 m, Feb. 1995, *A. Hirtz 6168* (holotype of *P. silvestris*: MO), C. Luer illustr. 17823; Mariano Acosta, El Tambo Reserve, alt. 3500 m, 21 Feb. 1998, *A. Hirtz & J. del Hierro 18772* (MO).

This species occurs in northern Ecuador and southernmost Colombia. In habit, including the drooping racemes of dark-purple striped flowers, it is indistinguishable from *P. bicornis*. The lip of *P. calvariola* is acutely deflexed upon itself near the middle, and the margins are entire. The lip of *P. bicornis* is fringed and not deflexed. The flowers of *P. calvariola* from Colombia are smaller than those of the plant described as *P. silvestris* from Ecuador, but the morphologically similar lips are about the same in size.

Pleurothallis capitonis Luer & Escobar, Orquideología 20: 44, 1996.

Ety.: From the Latin *capitonis*, "one with a big head," referring to large size of the single flower.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 15-47 cm long, with a tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical-obovate, acute, acuminate, 10-23 cm long, 2.5-6 cm wide, narrowly cuneate below into a subpetiolate base up to 2 cm long. **Inflorescence** a pendent, solitary flower or a loose two-flowered raceme, produced successively in a fascicle, from a spathe 1 cm long at the apex of the ramicaul; peduncle slender, arcuate, 15 mm long; floral bract 7-8 mm long; pedicels 10-11 mm long; ovary 7 mm long; **sepals** translucent cream-colored with purple spots, glabrous, membranous, the dorsal sepal ovate, acute, 17 mm long, 7 mm wide, 5-veined, the lateral sepals completely connate into a deeply concave, subglobose, obtuse synsepal, 14 mm long and broad unexpanded, 10-veined; **petals** cream with purple spots, glabrous, fleshy, narrowly ovate, ventricose, acute, 14 mm long, 5 mm wide, 5- to 6-veined; **lip** yellow with purple dots, thick, transversely horse shoe-shaped, the apex broadly rounded, minutely apiculate, 2.5 mm long from the base to the apex, 3.5 mm long from the far edge of the basal lobes, 4 mm wide, with the basal lobes rounded with revolute margins, flanking the column, the disc shallowly concave, acutely deflexed upon itself above the base, the base broadly reflexed, inflexibly attached to the base of the column; **column** stout, terete, 2.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

COLOMBIA: **Santander**: Velez, epiphytic in forest west of Velez toward Landazuri, alt. 2150 m, 4 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10110* (Holotype: MO). **Cundinamarca**: Bogotá, Salto de Tequendama. alt. 2500 m, 5 Jan. 1946, *M. Schneider 325* (AMES). **Nariño**: Alto de Tabano, east Andes of Pasto, 4 May 1876, *E. André 2965, 3120* (K).
ECUADOR: **Tungurahua**, Cordillera de Los Llanganates, epiphytic in cloud forest near Leito, alt. 3100 m, 11 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11158* (MO).

This large species is distinguished from other members of the section by the long ramicauls; long, acute, narrowly elliptical-obovate, more or less petiolate leaves; and a large, pendent, purple-spotted flower produced one or two at a time by a slender peduncle about 15 mm long. The dorsal sepal is 5-veined, the synsepal is 10-veined, and the petals are 6-veined. The lip is broadly U-shaped, acutely deflexed, and with the basal lobes with revolute margins.

Pleurothallis chuscalica Luer, Orquideología 22: 120, 1999.

Ety.: Named of "El Chuscal" above Santa Rosa, where the species was collected.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 15-20 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 17-22 cm long, 2.5-3 cm wide, narrowly cuneate below into the base. **Inflorescence** an arching, lax, few-flowered raceme, ca. 3 cm long including the peduncle, produced from a spathe ca. 1 cm long at the base of the leaf; floral bracts infundibular, 4-5 mm long; pedicels 4-5 mm long; ovary curved, 3 mm long; flowers non-resupinate; **sepals** translucent greenish white, glabrous, the middle sepal ovate, acute, 8 mm long, 3.5 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, ovoid, acute synsepal, 8 mm long, 5 mm wide expanded, 6-veined; **petals** greenish white, thick, glabrous, narrowly ovate, acute, 7 mm long, 1.8 mm wide, 3-veined; **lip** thick, subcordate-ovoid, 2 mm long, 2 mm wide, decurved near the middle with broadly rounded, erect sides below the middle surrounding the column, broadly rounded and concave above the middle with minutely crenulate margins, with the apex round, apiculate, the basal margins each with a rounded, protruding callus, the base broadly deflexed, connected to the obsolescent column-foot; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

COLOMBIA: **Antioquia**: El Chuscal above Santa Rosa, alt. 2500-2800 m, Nov. 1891, *F.C. Lehmann 7134* (Holotype: K), C. Luer illustr. 18691.

This species is known from only the original nineteenth century collection by Lehmann in the northern part of the Central Cordillera of Colombia. Vegetatively it is similar to *P. lindenii*, but the racemes are shorter with smaller, greenish white flowers. The sepals and petals are not distinctive, but the lip is small with the apex rounded, concave, minutely crenulate and apiculate. The calli are rounded and protuberant from the margins of the rounded sides below the middle.

Pleurothallis colossus Kraenzl. ex de Kerchowe, Le Livre des Orchid. 376, 1894.

Ety.: From the Greek *kolossos*, "immense," from the legendary gigantic statue of Apollo, *the Colossus of Rhodes.*

Syn.: *Pleurothallis saccata* Ames, Sched. Orchid. 4: 25, 1923.
Ety.: From the Latin *saccatus*, "saccate," referring to the deeply concave synsepal.

Syn.: *Pleurothallis praegrandis* Ames, Sched. Orchid. 5: 17, 1923,
Ety.: From the Latin *praegrandis*, "very large," referring to the size of the plant.

Syn.: *Pleurothallis hirtzii* Luer, Phytologia 47: 76, 1980.
Ety: Named for Alexander C. Hirtz of Quito, Ecuador, who first collected this species in Ecuador.

Plant very large, epiphytic to terrestrial, densely caespitose; roots numerous, coarse. Ramicauls stout, erect, 50-100 cm long when mature, with a large, loose, tubular sheath near the middle and 2-3 other loose sheaths at the base. **Leaf** suberect to spreading, coriaceous, broadly ovate, 30-40 cm long, 20-30 cm wide, with the apex acute, acuminate, the base deeply cordate, sessile. **Inflorescence** a fascicle of 5-10 erect, simultaneously subdensely many-flowered racemes, 20-38 cm long including the peduncles 5-7 cm long, from a foliaceous spathe 2-4.5 cm long at the base of the leaf; floral bracts infundibular, 3-4 mm long; pedicels 4-7 mm long; ovary 2-2.5 mm long; **sepals** dull white, spotted with purple, glabrous, the dorsal sepal elliptical, acute, 3-8 mm long, 2-4 mm wide, 3-veined, the lateral sepals connate into a concave, ovate, subacute synsepal, 3.5-8 mm long, 4-5 mm wide unexpanded, 4-veined; **petals** cream-colored, clavate-spathulate, 2-3 mm long, 1-1.5 mm wide, 3-veined, with the apex rounded and thickened; **lip** cream-colored, peltate, ovate-cordate, obtuse, 2-3 mm long, 1.75-2.25 mm wide, acutely deflexed above the base, with the basal lobes flanking the column, the disc with a pair of low, obtuse, conical calli at the base of the basal lobes, the base hinged to the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

COLOMBIA: **Cauca**: West Andes above Cali, *F.C. Lehmann 6929* (Lectotype: LE, Isolectotypes: AMES, K). **Valle del Cauca**: El Cairo, Cerro del Inglés, alt. 2400 m, 30 Dec. 1986, *F.A. Silverstone et al. 2797* (CUVC, MO). **Nariño**: terrestrial in forest north of Ricaurte, alt. 1600 m, 3 Nov. 1979, *C. Luer, J. Luer, A. Hirtz & K. Walter 4618* (holotype of *P. hirtzii*: SEL); Monopamba, alt. 1600-1800 m, collected by J. Aguirre, cultivated at Colomborquídeas, 26 Feb. 1997, *R. Escobar 8262* (JAUM, MO).
ECUADOR: **Carchi**: road embankment east of Maldonado, alt. 1550 m, 17 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15120* (MO); near Maldonado, May 1993, *F L Stevenson 93-0531-1* (MO). **Esmeraldas**: between Lita and San Lorenzo, alt. 700-880 m, 12 May 1990, *C. Dodson, A. Gentry, B. Boyle & D. Rubio 18250* (MO), C. Luer illustr. 17177. **Morona-Santiago**: Cordillera del Condor, east of Gulaquiza, alt. 2090 m, 22 July 1993, *A. Gentry 80356* (MO).
COSTA RICA: Without locality, *A. Endres s.n., 80* (W). **Alajuela**: Alto La Palma de San Ramón, alt. 1250 m, 27 Dec. 1923, as *P. megistrocaulon* Schltr., *in ed., A.M. Brenes 3013* (NY); Río Caño Negro, Monteverde Cerro Negro, alt. 1800 m, 7 Oct. 1987, *W.A. Haber & E. Bello 7537* (CR, MO); Monteverde Reserve, El Valle trail, alt. 1600 m, 27 Oct. 1985, *W.A. Haber 3228* (MO). **Cartago**: Cascajal, *C.H. Lankester 340* (holotype of *P. saccata*: K; isotype: AMES); southwest of Paraiso, 5 Feb. 1979, *T.B. Croat 47022* (MO); below Presa Tapantí, alt. 1650 m, 10 Aug. 1980, *J.M. MacDougal 1226* (DUKE, MO): Río Grande de Orosí, alt. 1500-1800 m, 24 Nov. 1984, *M. Grayum et al. 4561* (MO). **San José**: La Palma, alt. 1600 m, 3 Feb. 1924, *P.C. Standley 33222* (AMES); Parqué Nacional Braulio Carillo, above Zurquí Station, alt. 1680 m, 22 Sept. 1990, *S. Ingram & K. Ferrell 577* (SEL), C. Luer illustr. 16505.
PANAMA: **Darien**: Cana and vicinity, alt. 2,000-6,500 ft., 17 Apr.-8 June 1908, *R.S. Williams 973* (holotype of *P. praegrandis*: NY; isotype: AMES). **Chiriquí**: above Camp Escopeta, alt. 1700 m, 16 Feb. 1977, *C. Luer, J. Luer, R. Dressler & K. Dressler 1567* (SEL).

Vegetatively, this species is probably the largest in the genus. Rivals include *P. excelsa* Garay and *P. gargantua* Luer. Although produced in large numbers, the flowers are small, but they do vary considerably in size. The species occurs locally from Costa Rica and Panama into the Western Cordillera of Colombia and south

into southeastern Ecuador. It was first discovered in Cauca, Colombia, by Lehmann about a century ago.

Lehmann's collection of *P. colossus* was briefly mentioned in a few lines in French by the Belgian de Kerchowe in his *Le Livre des Orchides* in 1894. A specimen of the collection annotated by Kränzlin as "Pleurothallis colossus" was recently discovered by Eric Christenson in the herbarium of the Komarov Botanical Institute in St. Petersburg, Russia. Duplicate, unannotated specimens are present at AMES and Kew.

In 1923, Ames described the species twice from Central American collections, apparently being confused by the apparently depauperate leaf of the specimen of *P. saccata*, and inaccurate interpretations of the lip of *P. praegrandis*. From Colombia the species was described by Luer who was also misled by the descriptions and inaccurate illustrations of the Central American collections.

Pleurothallis colossus is distinguished by the immense size attained by the meter-tall ramicauls and dinner-plate-sized leaves. Several to many, many-flowered racemes emerge from the large spathe at the base of the cordate leaf. The comparatively small, whitish, purple-spotted flowers are borne simultaneously in several racemes. The synsepal is deeply concave; the spathulate petals are thickened at the apex; and the ovate, bicallous lip is acutely deflexed under the column.

Pleurothallis cornualis Luer, Selbyana 3: 86, 1976.

Ety.: From the Latin *cornualis*, "with horns," referring to the calli of the labellum.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 12-26 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical-ovate, acute, acuminate, 9-15 cm long, 3-5 cm wide, broadly cuneate to rounded at the sessile base. **Inflorescence** an arching, lax, few-flowered raceme, 10-12 cm long including the peduncle 5 cm long, produced from a spathe 1-1.5 cm long at the base of the leaf; floral bracts infundibular, 6-7 mm long; pedicels 5 mm long; ovary 5 mm long; flowers non-resupinate; **sepals** translucent yellow-green, spotted with red-purple, glabrous, the middle sepal narrowly ovate, acute, 13 mm long, 4 mm wide, 3-veined, the lateral sepals completely connate into a concave, ovate, acute synsepal, 13 mm long, 8 mm wide, 6-veined; **petals** yellow-green, spotted with purple, glabrous, obliquely ovate, acute, acuminate, lacerate, unguiculate, 9 mm long, 3 mm wide, 3-veined; **lip** green, dotted with purple, ovate, 5 mm long, 4 mm wide, acutely deflexed below the middle, obtuse or rounded at the apex, the disc slightly convex, with a pair of finger-like calli above the base, shallowly concave on the deflexed base, connected to the column-foot; **column** stout, terete, 2.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Pichincha**: between Quito and Santo Domingo, alt. ca. 1500 m, collected 3 Mar. 1975, cultivated 20 Dec. 1975, *C. Luer & R. Kent 628* (Holotype: SEL).

This species is known from only the original collection. It is characterized by the lax, drooping raceme of a few, relatively large, purple-spotted flowers. The middle sepal and synsepal are acute; the petals are lacerate; and the lip is ovate with a pair of horn-like calli at the base. They are similar to the calli seen on the lip of *P. archidonae*.

Pleurothallis cotyligera Luer & Escobar, Orquideología 20: 46, 1996.

Ety.: From the Latin *cotyliger*, "bearing a cup," referring to the labellar callus.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 13-22 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical, petiolate, acute, lightly acuminate, 12-16 cm long including the petiole ca. 2 cm long, 3.5-4.5 cm wide, cuneate below into the petiole. **Inflorescence** a pendent, few-flowered raceme, ca. 2 cm long, produced from an ovoid spathe 0.5 cm long at the at the apex of the ramicaul; peduncle arcuate, 1 cm long; floral bracts infundibular, 4 mm long; pedicels 5 mm long; ovary curved, 3 mm long; **sepals** translucent yellow-green, glabrous, the middle sepal ovate, acute, 8 mm long, 4.25 mm wide, 3-veined, the

lateral sepals completely connate into a deeply concave, cymbiform, obtuse synsepal, 8 mm long, 6.5 mm wide unexpanded, 6-veined; **petals** green, thick, glabrous, ovate, acute, 7.5 mm long, 2.5 mm wide, 3-veined; **lip** thick, trilobed, 1.5 mm long from base to apex, 3 mm wide unexpanded, with the apical lobe triangular, acute, the basal lobes erect, obtuse, erect, thickened within the margins, flanking the column, the disc with a central, circular depression surrounded by callous margins, the base shortly and broadly reflexed, connected to the obsolescent column-foot; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

COLOMBIA: **Risaralda:** without specific locality (probably near Pereira), flowered in cultivation by S. Tsubota, 10 May 1993, *C. Luer 16765* (Holotype: MO).

This species, known only from the Central Cordillera of Colombia, is related to *P. strobilifera*, but it is distinguished from the latter by the petiolate leaves; smaller, yellow-green flowers; and a lip with a circular, callous-margined depression in the center.

Pleurothallis crescentilabia Ames, Sched. Orchid. 4: 20, 1923.

Ety.: From the Latin *crescentilabia*, "with crescent-shaped lip," referring to the labellum.

Plant medium to large, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls relatively stout, erect, 10-18 cm long, with a close, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, ovate, acute, petiolate, 11-17 cm long, 5-8 cm wide, more or less abruptly contracted below into a channeled petiole 1-1.5 cm long. **Inflorescence** a fascicle of several 1- or loosely 2-flowered racemes, ca. 5 mm long including the peduncle, at the base of the leaf, with a broad, fugacious spathe 4 mm long; floral bracts infundibular, 3-4 mm long; pedicels 2-3 mm long; ovary 3 mm long; **sepals** translucent light yellow, suffused with rose along the veins, the dorsal sepal narrowly ovate, acute, 12 mm long, 4 mm wide, 3-veined, the lateral sepals completely connate into a concave, acute synsepal, 11 mm long, 7 mm wide unexpanded, 6-veined; **petals** red, thick, glabrous, linear, narrowly terete at the acute apex, 10 mm long, 1.5 mm wide; **lip** yellow, suffused with rose, thick, "U-shaped," 3.5 mm long including the basal lobes, 3.5 mm across, the body 1 mm long, the apex broadly rounded, with minutely irregular margins, the basal lobes elongate, incurved, surrounding the column, the disc callous-thickened at the base of both basal lobes, the base broadly and acutely deflexed, connected to the obsolescent column-foot; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

COSTA RICA: Without locality, *C.H. Lankester 398* (Holotype: AMES). **Cartago**: Navarro, Feb. 1924, *C.H. Lankester 778* (AMES).
PANAMA: **Chiriquí**: Fortuna dam site, collected by R.L. Dressler, flowered in cultivation, 13 Jan. 1978, *C. Luer 2280* (SEL).

This species is uncommon in Costa Rica and western Panama. It is characterized by a large, ovate, petiolate leaf and a shortly pedunculate fascicle of large flowers at the base of the petiole. The dorsal sepal and concave synsepal gape and from within a pair of narrow, red petals protrudes. The lip is horseshoe shaped with the basal lobes surrounding the column.

Pleurothallis dorrii Luer, Lindleyana 12: 45, 1997.

Ety.: Named for Dr. Larry J. Dorr of the New York Botanical Garden, co-collector of this species.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 15-18 cm long, with a close, tubular sheath below the middle and 2 other sheaths at the base. **Leaf** erect, thinly coriaceous, narrowly elliptical-obovate, subacute, acuminate, 16-18 cm long, 3.5-4 cm wide, the base narrowly cuneate into a slender petiole 1-1.5 cm long. **Inflorescence** an arching, loosely few-flowered raceme 5-11 cm long including the peduncle ca. 2 cm long, from a spathe 1-1.2 cm long a short distance below the apex of the ramicaul; floral bracts closely infundibular, 6-7 mm long; pedicels 8-9 mm long; ovary 5-6 mm long; **sepals** translucent with purple stripes, glabrous, the dorsal sepal narrowly ovate, acute, 14 mm long, 4 mm wide, 3-veined, the lateral sepals connate into a concave, ovate, acute synsepal, 14 mm long, 9 mm wide expanded, 6-veined; **petals** similarly striped in purple, narrowly ovate, acute, lightly acuminate, 12 mm long, 4 mm wide, 3-veined; **lip** deeply cordate-orbicular, 5 mm long, 4.75 mm wide, the apex rounded, minutely apiculate, the margins entire, the basal lobes rounded, embracing the column, the disc shallowly concave, with a small, transverse callus at the base, the base shortly but acutely deflexed between the basal lobes; **column** terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

VENEZUELA: **Trujillo**: Boconó, Montaña de Misisí, old road between Trujillo and Boconó, alt. 2000-2400 m, 4 July 1990, *L.J. Dorr, L.C. Burnett & W. Diaz 7227* (Holotype: NY; Isotypes: AMES, VEN), C. Luer illustr. 15539.

This large species, apparently endemic in western Venezuela, is distinguished by the slender ramicauls; obovate, acuminate leaves; and an arching, loosely few-flowered inflorescence shorter than the leaf. The translucent sepals and petals are acute and striped in purple. The lip is deeply cordate with the apex rounded and the basal lobes round and encircling the column.

Pleurothallis elvirana Carnevali & Ramírez, Novon 3: 118, 1993.

Ety.: Named for Elvira Cotton who distributed material collected during the Neblina Project.

Plant medium to large, epiphytic, caespitose; roots coarse. Ramicauls slender to stout, erect, 15-35 cm long, with a close, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical, acute, 10-17 cm long, 2.5-4.5 cm wide, obtusely cuneate below into the sessile base. **Inflorescence** 1-4, loose, arching, 3- to 8-flowered racemes, up to 9 cm long including the peduncle ca. 2 cm long, produced from a spathe less than 1 cm long at the base of the leaf; floral bracts infundibular, 3-4 mm long; pedicels 7-8 mm long; ovary 6 mm long; **sepals** yellow, glabrous, the middle sepal elliptical-ovate, acute, 8 mm long, 3.25 mm wide, 3-veined, the lateral sepals completely connate into a concave, obtuse synsepal, 8 mm long, 6 mm wide expanded, 6-veined; **petals** glabrous, narrowly elliptical, thickened at the acute apex, 7.5 mm long, 2 mm wide, 3-veined; **lip** thick, suborbicular-trilobed, 1.5 mm long, 2.5 mm wide, with the apex broadly rounded, entire, the basal lobes subacute, surrounding the column, the disc flat, slightly callous-thickened above the base, the base acutely deflexed, connected to the obsolescent column-foot; **column** stout, terete, 1 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

VENEZUELA: **Terr. Fed. Amazonas**: Río Negro, Cerro de La Neblina, alt. 1250 m, 21-24 Mar. 1984, *Liesner & Stannard 16898* (Holotype: VEN; Isotype: MO), C. Luer illustr. 17266.

This species is apparently endemic in Amazonian Venezuela. It is characterized by the elliptical, acute, sessile leaf and pendent, loose racemes of yellow flowers. The sepals and petals are similar to many, closely related species. The lip is suborbicular with subacute basal lobes that embrace the column.

Pleurothallis hartwegii Lindl., Edwards' Bot. Reg. 28: Misc. 80, 1842, not 1845.

Ety.: Named in honor of Theodor Hartweg, noted collector who first discovered this species.

Syn.: *Pleurothallis geniculata* Lindl., Folia Orchid. *Pleurothallis* 15, 1859.

Ety.: From the Latin *geniculatus*, "bent like a knee," referring to the labellum.

Syn.: *Humboldtia geniculata* (Lindl.) Kuntze, Rev. Gen. Pl. 667, 1891.

Syn.: *Humboldtia hartwegii* (Lindl.) Kuntze, Rev. Gen. Pl. 667, 1891.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 30-40 cm long, with a close, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly obovate, acute, 20-35 cm long, 4-5 cm wide, narrowly cuneate below into the sessile base. **Inflorescence** a dense fascicle of 1- or loosely 2-flowered racemes, ca. 1 cm long including the peduncle ca. 0.5 cm long, produced at the base of the leaf, with a fugacious spathe; floral bracts inflated, 5 mm long; pedicels 5 mm long; ovary 4-5 mm long; flowers probably non-resupinate: **sepals** glabrous, the middle sepal elliptical, acute, 11 mm long, 4 mm wide, 3-veined, the lateral sepals completely connate into a concave, obtuse synsepal, 9.5 mm long, 8.5 mm wide expanded, 6-veined; **petals** glabrous, elliptical, acute, 8 mm long, 3 mm wide, 3-veined; **lip** thick, suborbicular-trilobed, 4 mm long, 3.5 mm wide, with the apex obtuse, shortly acuminate, incurved, minutely denticulate-erose, the basal lobes rounded, erect, surrounding the column, the disc shallowly concave, with a pair of erect, short, rounded calli at either side of the base, the base acutely deflexed, connected to the obsolescent column-foot; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Loja**: Loja, on mountains, *T. Hartweg s.n.* (Holotype: K), C. Luer illustr. 16362. Loja, Mar. 1845, *T. Hartweg 835* (W). **Zamora-Chinchipe**: Tapichalaca, above Valladolid, alt. 2200 m, 19 May 1986, *D. D'Alessandro 690* (MO).
COLOMBIA: **Cauca**: El Tambo, primary forest near Munchique, alt. 2400 m, 11 Nov. 1936, *K. von Sneidern 1091* (S).

This large species is apparently rare in the mountains of southern Ecuador and southern Colombia. It is characterized by the stout ramicaul; a long, narrowly obovate leaf; and a dense fascicle of remnants of old inflorescences at the base of the leaf. Short, one- or two-flowered racemes appear sporadically. The flowers are similar to those of *P. archidonae*, but the lip is concave with a minutely denticulate margin and a shortly acuminate, incurved tip.

Pleurothallis hemispherica Luer & Escobar, Orquideología 14: 154, 1981.

Ety.: From the Latin hemisphaericus, "hemispherical," referring to the shape of the petals.

Plant large, terrestrial to epiphytic, caespitose; roots coarse, flexuous. Ramicauls erect, stout, terete, 30-125 cm tall, with 2-3 tubular, ribbed imbricating sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, 15-25 cm long, 4-8 cm wide, the base cuneate, conduplicate, sessile. **Inflorescence** a descending, 2- to 6-flowered raceme 3-8 cm long, from a 1.5 cm long, fugacious spathe at the base of the leaf, the flowers non-resupinate; floral bract loose, widely infundibular, 6-10 mm long; pedicel 12-13 mm long; ovary green, pitted, 6 mm long; **sepals** yellow, broadly striped with dark purple along the veins, the middle sepal elliptical, obtuse, concave, 16 mm long, 8 mm. wide expanded, the lateral sepals connate into a deeply concave, broadly elliptical synsepal, the apex rounded, 16 mm long, 12 mm wide; **petals** yellow, dotted with red, obovate, fleshy, thick, hemispherical above the middle, 10 mm long, 4.5 mm wide, 2.75 mm thick, adherent to each other on flattened inner surfaces; **lip** uppermost, ivory, marked with red, bilobed, transversely obovate, 4 mm long, 5 mm wide, the truncate apex minutely apiculate, the rounded lateral lobes erect and incurved around the column; **column** stout, 2 mm long, with an obsolescent foot.

COLOMBIA: **Antioquia**: Munic. of El Carmen, Partidas de San Lorenzo, terrestrial in cloud forest, alt. 2520 m, 29 Jan. 1978, *C.Luer, J. Luer, & R. Escobar 2349* (Holotype: SEL; Isotype: JAUM); same locality, 10 Jan. 1974, *R. Escobar, O. Robledo & M. de Robledo 1082* (JAUM).

This immense species is most remarkable in the thick, hemispherical petals that cling together in front of the lip to form a solid, spherical body. The deeply concave, broadly striped synsepal acts like a roof above while the middle sepal projects below. The flowers are basically similar to those of *P. bicornis* and relatives.

Pleurothallis henniae Luer & Dalström, Lindleyana 11: 162, 1996.

Ety.: Named in honor of Dr. Henni Wanntorp, director of the Stockholm Botanical Garden, and co-discoverer of this species.

Plant large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 14-35 cm long, with a closely fitting, tubular sheath below the middle and 2 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, sessile, 10-17 cm long, 1-1.5 cm wide, narrowly cuneate below to the base. **Inflorescence** a pendent, loosely several-flowered raceme 8-11 cm long including the peduncle 2-3 cm long, from a spathe 10-15 mm long at the base of the leaf; flowers purple, non-resupinate in the pendent position; floral bracts infundibular, 6-7 mm long; pedicel 5 mm long; ovary 4-5 mm long; **sepals** purple, glabrous, the middle sepal ovate, acute, concave, 7 mm long, 3.25 mm wide, 3-veined, the lateral sepals connate into an ovate, acute, concave synsepal, 7 mm long, 4.5 mm wide unexpanded, 4-veined; **petals** narrowly ovate, acute, attenuate, thickened, 7 mm long, 1 mm wide, 3-veined; **lip** deeply cordate, 3.5 mm long, 3 mm wide, the apex obtuse, shortly acuminate-apiculate, the margins minutely irregular-erose above the middle, the basal lobes obtuse, surrounding the column, the disc subverrucose, with a pair of low, subacute calli at the base, the base acutely deflexed; **column** stout, terete, 1.5 mm long, the foot obsolescent, the unhooded anther, rostellum and stigma apical.

ECUADOR: **Imbabura**: epiphytic in wet forest, Los Cedros Reserve, alt. 1850 m, 27 Jan. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1802* (Holotype: MO). **Carchi**: south of Chical, Cerro Oscuro, alt. 2100 m, May 1997, *A. Hirtz 6563* (MO).

This slender species, apparently endemic in wet forests of northwestern Ecuador, is distinguished by the very narrowly elliptical, sessile leaves and a pendent raceme of several, simultaneous, purple flowers that are small for the subsection. The deeply cordate lip is obtuse with basal lobes that embrace the column. The disc is subverrucose with a pair of low subacute calli at the base above the acute deflexion.

Pleurothallis imber-florum Luer & Escobar, Orquideología 16: 167, 1984.

Ety.: From the Latin *imber florum*, "a shower of flowers," referring to the inflorescence.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 12-31 cm long, with a close, tubular sheath above the base and another at the base. **Leaf** erect, coriaceous, ovate, 9-16 cm long, 3-6 cm wide, the apex acute, shortly acuminate, the base cuneate, sessile. **Inflorescence** 1-3 densely many-flowered, arching racemes, 14-36 cm long, from a spathe 2 cm long at the base of the leaf; **sepals** translucent colorless with dull purple-brown spots, glabrous, the middle sepal ovate, acute, 7 mm long, 2.5 mm wide, the lateral sepals uppermost, connate into a concave, ovate, acute synsepal, 7 mm long, 4 mm wide not expanded; **petals** translucent with purple-brown spots, ovate, oblique, acute, 6 mm long, 2 mm wide, the margins fimbriate-erose; **lip** white, transversely obcordate, 2 mm long, 2 mm wide, the broadly truncate apex shortly apiculate, the base with rounded lobes to either side of the column, the disc concave centrally between a pair of conical calli above the basal lobes; **column** stout, 1 mm long, footless, the anther and stigma apical.

COLOMBIA: **Chocó**: Munic. of San José del Palmar, alt. 2000 m, Oct. 1981, collected by L. & J. Posada et al. cultivated at Colomborquídeas, 29 Nov. 1982, *R. Escobar 2451* (Holotype: SEL), C. Luer Illustr. 8508. **Valle del Cauca**: El Cairo, Las Amarillas, Serrania de los Paraguas, between El Cairo and Río Blanco, alt. 2070 m, 31 Mar. 1988, *F. Silverstone-Sopkin, N. Paz, R. Eriksson et al. 3831* (CUVC); El Cairo, Cerro del Inglés, Serrania de los Paraguas, alt. 2300 m, 3 Jan. 1987, *P. Silverstone-Sopkin, N. Paz, R. T. González, I. Cabrera, D, Garcés & A. Henao 2906* (CUVC).

This species occurs in the Western Cordillera of Colombia. It is easily distinguished by the long, arching racemes of small, spotted flowers. The uppermost synsepal is deeply concave; the margins of the petals are shortly and irregularly fimbriate; and the lip is broadly obovate with a pair of small, conical calli near the deflexed base.

Pleurothallis inflata Rolfe, Bull. Misc. Inform. 154, 1894.

Ety.: From the Latin *inflatus*, "inflated," referring to the uppermost synsepal.

Syn.: *Pleurothallis lindenii* var. *pumila* Rchb.f., Bonplandia 3: 72, 1855.

Ety.: From the Latin *pumilus*, "small," referring to the habit.

Plant medium in size to large, epiphytic to terrestrial, caespitose; roots slender. Ramicauls erect, slender, 15-30 cm long, with a close, tubular sheath near the middle, and 2 others at the base. **Leaf** coriaceous, narrowly elliptical-obovate, acute, slightly acuminate, 13-22 cm long, 1.5-3.5 cm wide, narrowly cuneate below to the subpetiolate base. **Inflorescence** a single, more or less pendent flower, occasionally followed by a second, produced 1 or 2 simultaneously, by peduncles 10-20 mm long, the flowers non-resupinate, from a spathe 10-12 mm long at the apex of the ramicaul; **sepals** translucent white or greenish white, with small purple spots, glabrous, the middle sepal ovate, acute 9-12 mm long, 5-6 mm wide, the lateral sepals uppermost, connate into a deeply concave, ovoid synsepal, 8-11 mm long, 6-9 mm wide unexpanded, the apex obtuse, minutely bifid; **petals** colored as the sepals, ovate, acute, acuminate above the middle, 7-11 mm long, 4-5 mm wide below the middle; **lip** greenish white with purple flecks, transversely trilobed, 4-5 mm long, 5-7 mm wide, the apex obtuse, minutely apiculate, the sides broadly rounded into lobes, more or less incurved, flanking the column, the center of the disc variously callus with a glenion at the base, the base shortly deflexed, attached to the base of the column; **column** stout, 2-3 mm long, the foot obsolescent, the anther and stigma apical.

VENEZUELA: Without collection data, imported by F. Sander & Sons, St. Albans, from Colombia, flowered in cultivation 28 Sept. 1891, *F. Sander s.n.* (Holotype: K). **Mérida**: La Montaña study area, south of La Montaña Teleférico station, alt. 2550-2650 m, 6 Sept. 1995, *D. Kelly et al. 10538* (TCD). COLOMBIA: **Santander**: old dept. Ocaña: San Pablo, alt. 6,000 ft., *H. Wagener s.n.* (holotype of var. *pumila*: W). **Boyacá**: between Arcabuco and Moniquirá, alt. 2500 m, 25 Apr. 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7533* (SEL). **Antioquia**: Cerro Padre Amaya, alt. 2800 m, cultivated by M. & O. Robledo at La Ceja, 16 June 1979, *C. Luer 3700* (SEL).

This species is widely distributed across northern Colombia and adjacent western Venezuela. It is characterized by a slender ramicaul; narrowly obovate, acuminate leaves; and a single, purple-spotted flower that is occasionally followed by a second. The uppermost synsepal is deeply cucullate; the petals are broad below the middle, acuminate above; and the lip is transversely and obscurely three-lobed. A watercolor painting of var. *pumila* at W appears to be this species.

Pleurothallis jaculifera Luer & Escobar, Orquideología 21: 93, 1998.

Ety: From the Latin *jaculifer*, "javelin-bearing," referring to the slender, lanceolate leaves.

Plant large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 20-30 cm long, with a tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, attenuate, 13-16 cm long, 1.5-2 cm wide, narrowly cuneate below into the sessile base. **Inflorescence** 1-3 pendent, loosely few-flowered racemes, 5-6 cm long including the peduncle ca. 1 cm long, borne from a spathe ca. 1 cm long at the apex of the ramicaul; floral bracts 4-5 mm long; pedicels 2-3 mm long; ovary 3 mm long; flowers purple or light yellow-green; **sepals** glabrous, membranous, the middle sepal ovate, acute, 7-9 mm long, 3-4 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, obtuse synsepal, 7-8.5 mm long, 5-6 mm broad unexpanded, 6-veined; **petals** glabrous, thick, narrowly oblong, acute, 5.5-7 mm long, 1-1.4 mm wide, 3-veined; **lip** thick, horseshoe-shaped, the apex broadly rounded, minutely apiculate, 1.5 mm long from the base to the apex, 3 mm long from the far edge of the basal lobes, 3 mm wide, with the basal lobes rounded with revolute margins, flanking the column, the disc shallowly concave, the base broadly reflexed, inflexibly attached to the base of the column; **column** stout, terete, 1.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

COLOMBIA: **Risaralda**: Pueblo Rico, epiphytic in forest along the road to the TV tower, alt. 2000 m, 14 May 1993, *C. Luer, J. Luer, R. Escobar & A. DeWilde 16843* (Holotype: MO). **Antioquia**: Frontino, Alto de Las Cuevas. alt. 2000 m, collected by E. Valencia, Apr. 1991, flowered in cultivation at Colombborquídeas, 23 May 1995, *C. Luer 17558* (MO). **Valle del Cauca**: Finca Zingara, between Cali and Buenaventura, alt. 1900 m, 27 Nov. 1994, *J. Giraldo-Gensini & L. Olver A. 556* (MO; TULV).

This species is similar to *P. strobilifera*, but it is distinguished by the tall, slender habit with narrowly elliptical, acuminate, sessile leaves, and smaller flowers with thick, narrowly linear petals. Except for the smaller size of the lip of *P. jaculifera*, the lips of the two species are similar.

Pleurothallis lamellaris Lindl., Folia Orch. *Pleuroth.* 8, 1859.

Ety.: From the Latin *lamellaris*, "lamellate," referring to the calli of the lip.

Syn.: *Humboldtia lamellaris* (Lindl.) Kuntze, Rev. Gen. Pl. 667, 1891.

Syn.: *Pleurothallis loxensis* Luer & Hirtz, Lindleyana 11: 166, 1996.

Ety.: Named for the locality of Loja, near where this species was discovered.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 25-130 cm long, with a tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, ovate, acute, 13-33 cm long, 6.5-12 cm wide, the base cordate, sessile. **Inflorescence** an arcuate, loosely several-flowered raceme of simultaneous flowers, up to 10 cm long including the peduncle 4-5 cm long, subtended by a spathe 1.5 cm long, at the base of the leaf; floral bracts infundibular, 5-7 mm long; pedicels 6-7 mm long; ovary 5-6 mm long; **sepals** translucent with dark purple stripes, glabrous, membranous, the middle sepal ovate, acute, 13 mm long, 6 mm wide, 3-veined, the lateral sepals completely connate into a shallowly concave, broadly ovoid, obtuse synsepal, 11 mm long, 11 mm wide unexpanded, 6-veined; **petals** yellow with 3 brown veins, cellular-glandular, fleshy, semiterete, fusiform, acute, 7.5 mm long, 2.5 mm wide, 2 mm thick, 3-veined, adherent to each other in the natural position; **lip** green, trilobed or orbicular-U-shaped, 3 mm long and 4 mm wide, the apex broadly rounded, minutely denticulate, 2 mm long from the base to the apex, the basal lobes oblong, obtuse, clasping the column, the disc with a low, rounded callus on either side, the base acutely deflexed upon itself, inflexibly attached to the base of the column; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

BOLIVIA: Without locality, 1846, *Bridges s.n.* (Holotype: K), C. Luer illustr. 19022.
PERU: **Cuzco**: Calca, Vilcabamba, alt. 2700 m, 6 Jan. 1944, *C. Vargas 2947* (AMES), identified in *Orchids of Peru* as *P. bicornis* Lindl.
ECUADOR: **Zamora-Chinchipe**: epiphytic in forest east of the pass between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13602* (Holotype: MO; Isotype: QCNE); same area, alt. 1950-2100 m, 15 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 3454* (AAU). **Loja**: Nudo de Sabanilla, above Yangana, alt. 2300-2500 m, 2 Apr. 1985, *G. Harling & L. Andersson 23544* (GB).
COLOMBIA: **Antioquia**: Carmen de Viboral, alt. 2100 m, collected by J. Lopez, cultivated at Colomborquídeas, 20 Apr. 1997, *R. Escobar 8393* (MO).

This species is infrequent but widely distributed in the Andes from central Colombia into Bolivia where a specimen was first collected by Bridges and described by Lindley in the nineteenth century. It is characterized by the large habit;

ovate, cordate leaves; an arching raceme of relatively large flowers; sepals intensely striped in dark purple; extremely thick petals adherent to each other; and a rounded, bicallous, minutely denticulate lip with basal lobes clasping the column.

Pleurothallis lindenii Lindl., Ann. Mag. Nat. Hist. ser. 1, 12: 397, 1843.

Ety.: Named for Jean Jules Linden, orchidologist of Luxemburg and Belgium, who collected this species.

Syn.: *Humboldtia lindenii* (Lindl.) Kuntze, Rev. Gen. Pl. 667, 1891.

Syn.: *Pleurothallis araguensis* Ames, Sched. Orchid. 1: 9, 1922.: type: US
Ety.: Named for the state of Aragua where the species was collected.

Syn.: *Pleurothallis pendula* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 51, 1924.
Ety.: From the Latin *pendulus*, "hanging," referring to the pendent racemes.

Syn.: *Pleurothallis andrei* Luer & Escobar, Orquideología 20: 34, 1996.
Ety.: Named in honor of Eduard François André who collected this species.

Plant medium in size to large, epiphytic, caespitose; roots slender to coarse. Ramicauls slender to stout, erect, 5-50 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 6-20 cm long, 1.5-5 cm wide, cuneate below into the base. **Inflorescence** a pendent, lax, several-flowered raceme, 3-10 cm long, produced from a spathe 1.5-2 cm long at the base of the leaf; peduncle slender, arcuate, 1-2 cm long; floral bracts infundibular, 4-6 mm long; pedicels 4-15 mm long; ovary curved, 3-7 mm long; flowers non-resupinate; **sepals** translucent light green or light yellow, suffused with purple in stripes along the veins, glabrous, the middle sepal ovate, acute, 11-15 mm long, 4-6 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, cymbiform, subacute to obtuse synsepal, 11-14 mm long, 8-10 mm wide unexpanded, 6-veined; **petals** mottled with purple or totally purple, thick, glabrous, ovate, acute, 9-14 mm long, 2.5-3 mm wide, 3-veined; **lip** thick, cordate-subtrilobed, entire, 3-5 mm long, 3-4.75 mm wide, with the apex subacute, antrorse, the basal lobes erect, rounded, flanking the column, the disc shallowly concave, with a comparatively large pair of rounded calli above the base, the base shortly acutely deflexed, connected to the obsolescent column-foot; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

VENEZUELA: **Mérida**: epiphytic in forests of the Sierra Nevada, alt. 10,000-11,000 ft., Aug. 1846, *J. Linden 630* (Holotype: K; Isotypes: AMES, P, W); "La Isla" above Tabay, alt. 2285-2745 m, 18 May 1944, *J.A. Steyermark 56651* (AMES); La Montaña study area, south of La Montaña Teleférico station, alt. 2550-2650 m, 1 Sept. 1995, *D. Kelly et al. 10382* (TCD, VEN). **Aragua**: Colonia Tovar, 8 Nov. 1854, *A. Fendler 1475* (K, W); Colonia Tovar, 5,000 ft., H. Wagener s.n. (W); near Colonia Tovar, alt. 2100-2200 m, 26 Dec. 1921, *H. Pittier 10004* (holotype of *P. araguensis*: AMES; isotypes: K, US). "Caracas," Galipan, alt., 6,000 ft., 1846, *L. Schlim 126* (BR, W).
Moritz 1441 (LE).
COLOMBIA: **Santander**: cloud forest east of Bucaramanga toward Berlin, alt. 3000 m, 7 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10189* (MO). **Cundinamarca**: "Bogotá," *Karsten s.n.* (W); Boquerón de San Francisco near Bogotá, alt. 2700 m, 21 Jan. 1883, *F.C. Lehmann 2488* (BR, K); Páramo de Guasca, alt. 3000 m, 6 June 1942, *J. Cuatrecasas 13615* (AMES); Bogotá, Usaquén, 21 Nov. 1943, *M. Schneider 104* (AMES); Páramo above Bogotá, alt. 2800-3200 m, 19 July 1944, *M. Schneider 164* (AMES); Nuñez, alt. 2400 m, 11 June 1952, *M. Kœpie 4674* (C); below Tequendama, around El Ermitaño, alt. 2000 m, 27 June 1960, *L. Uribe U. 3476* (AAU, COL). **Medellín**: Roezl s.n. (W); **Quindío**: La Ceja, 10 Mar. 1876, *E.F. André 2160* (K); at the pass between Salento and Tocha, alt. 3300 m, 10 May 1993, *C. Luer, J. Luer, R. Escobar & A. DeWilde 16744* (holotype of *P. andrei*: MO). **Caldas**: between Laguneta and Salento, alt. 2800 m, 19 Mar. 1942, *K. von Sneidern 3013* (AMES, C); San Antonio, "San José," alt. 2400-2500 m, 1 July 1922, *F.W. Pennell 7635* (AMES, NY). **Valle de Cauca**: Cuenca del Río Cali, near Peñas Blancas, 10-11 Jan. 1963, *L. Figueiras 8262* (US).Cali, Farallones de Cali, alt. 2900 m, 4 Jan. 1977, *D. Hartman 613, 615* (CUVC); Cali, Pance, collected by J. Aguirre, cultivated Colomborquídeas, 20 Apr. 1977, *R. Escobar 8320* (MO). **Nariño**: Ipiales at the Ecuadorian border, alt. 2900 m, Mar. 1923, *W. Hopp 172* (holotype of *P. pendula* destroyed at B); Páramo de Guapuscal, alt. 3600 m, May 1876, *E. André 3038* (K).
ECUADOR: **Pichincha**: Guarumal, alt. 2000 m, 31 Dec. 1955, *E. Asplund 18954* (AMES, S). **Chimborazo**: between Baños and Riobamba, 24 Apr. 1971, *H. Lugo 1856* (AMES, GB). **Loja**: Hda. Horta-Naque, alt. 3100 m, *R. Espinosa 903* (AMES, LOJA); south of Saraguro, alt 2800 m, 6 Nov. 1977, *G. Harling, U. Eliasson & L. Andersson 15110, 15111* (GB); cloud forest above Jimbura, alt. 3150 m, 22 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9655* (MO). **Azuay**: lithophytic west of Cuenca, Río Matadero, alt. 9,300-9,600 ft., 5 Mar. 1945, *W.H. Camp E-1961* (AMES, NY, S); north of Sevilla de Oro, alt. 7,000-8,300 ft., 27 Aug. 1945, *W.H. Camp E-5005* (AMES); terrestrial south of Cuenca, alt. 3250 m, 4 May 1943, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 4981* (AAU, AMES);

same area, Páramo de Tinajillas, alt. 2800-3200 m, 9 May 1974, *G. Harling & L. Andersson 14487* (GB); terrestrial south of Cuenca, Río Cumbe, alt. 2900-3000 m, 9 June 1979, *B. Løjtnant, A. & U. Molau 14367, 14368* (AAU, GB); terrestrial between Jarata and La Paz, south of Cuenca, alt. 3400 m, 6 Mar. 1985, *G. Harling & L. Andersson 22834* (GB); scrubby forest south of Cuenca, alt. 3000 m, 20 Jan. 1992, *C. Luer, J. Luer, P. Jesup & A. Jesup 16051* (MO). **Zamora-Chinchipe**: Cajanuma range south of Loja, alt. 2500 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10775* (MO).
PERU: **Cajamarca**: Celendin, terrestrial along road to Celendin, alt. 3055 m, 1 July 1989, *D. Bennett 3926* (MO). **Huánuco**: Río Llulla Pichas, ascent of Cerros del Sira, elfin forest, alt. ca. 1950 m, 30 July 1969, *T.R. Dudley 13442* (NA). **Cuzco**: Urubamba, alt. 2800 m, 28 Mar. 1942, *C. Vargas 2663* (AMES, CUZ); Yuncapata, Santa Rita, alt. 2800 m, *C. Vargas 2663* (AMES).

This species was first collected by Linden near Mérida in western Venezuela. It is widely distributed from Venezuela into Peru, the same general distribution as a close ally, *P. bicornis*, with which it is often identified. The two species are very similar and often indistinguishable when dried and mounted unless a flower is rehydrated. Dunsterville placed parts of both species on the same illustration which was erroneously identified as the Peruvian *P. secunda* Poepp. & Endl. in the *Field Guide of the Orchids of Venezuela*. In *Orchids of Venezuela*, vol. 1, *P. lindenii* alone is misidentified as *P. secunda*, which led to many erroneous identifications.

Pleurothallis lindenii is variable in size, large forms approaching some of those of *P. bicornis*. The former is characterized by a slender to stout ramicaul that bears an acute, sessile leaf, and one or a few, loosely flowered, arching racemes of purple-striped flowers. From beneath the cucullate synsepal the elliptic petals protrude and diverge. The lip is cordate with the apex subacute to obtuse and entire.

Pleurothallis bicornis is usually larger, the middle sepal is proportionately narrower, the pointed petals are in apposition or adherent, and the apex of the lip is broadly rounded and variously fimbriate.

Pleurothallis magnifica Luer & Escobar, Orquideología 16: 169, 1984.

Ety.: From the Latin *magnificus*, "magnificent," in allusion to the handsome plant.

Plant large, terrestrial (also epiphytic?), caespitose; roots coarse. Ramicauls stout, suberect, 40-60 cm tall, with a with a close tubular sheath below the middle and 2 others near the base. **Leaf** more or less arching, horizontal to pendant, coriaceous, obovate, acute, acuminate, 15-25 cm long, 5-8 cm wide, the base cuneate to the subpetiolate base. **Inflorescence** 1-3 loosely flowered, flaccid racemes, 8-12 cm long, lying upon the leaf, from a spathe 2-3 cm long, at the base of the leaf; flowers non-resupinate; floral bracts 8-11 mm long; pedicels 11-20 mm long; ovary 8-10 mm long; sepals glabrous, dull translucent white with large purple spots, the middle sepal ovate, narrowly obtuse, 20 mm long, 7.5 mm wide, the lateral sepals uppermost, connate into a deeply concave synsepal, 19 mm long, 16 mm wide, the apex rounded, minutely bifid; **petals** purple with scattered unpigmented spots, ovate, acute, 17 mm long, 7 mm wide; **lip** light green, dotted with purple, transversely oblong, deflexed near the middle, 4.5 mm long, 6 mm wide, with erect, rounded, lateral margins, the apex transverse, minutely erose, the disc with a pair of low, rounded calli near the middle; **column** stout, 2.5 mm long, footless, the anther and stigma apical.

COLOMBIA: **Cauca**: Munic. of San Sebastian, terrestrial in cloud forest, Páramo de Barbillas, alt. 3150 m, 13 Nov. 1982, *C. Luer & R. Escobar 8374* (Holotype: SEL).

This large species is known only from southern Colombia where it grows in the thick humus of a mossy, subparamo forest shared with *Masdevallia racemosa* Lindl. Several large, spotted flowers in a loose, flaccid raceme lie upon or hang over the edge of the more or less prostrate leaf. The uppermost synsepal is deeply cucullate over the lip. The lip is transverse with broadly rounded sides and a broad, recurved apex.

Pleurothallis megalotis Luer & Hirtz, Lindleyana 3: 146, 1988.

Ety.: From the Greek *megalotis*, "big-eared," referring to the rounded basal lobes of the lip.

Plant medium-sized to large, epiphytic, densely caespitose; roots slender, fasciculate. Ramicauls slender, erect, 5-30 cm long, round in cross-section, with close, tubular sheaths above the base. **Leaf** erect, coriaceous, narrowly elliptical, 9-16 cm long including the petiole 1-2.5 cm long, 1.5-3 cm wide, the apex acute, lightly acuminate, the base cuneate into the slender petiole. **Inflorescence** a fascicle of solitary, successive flowers borne from a spathe 4-11 mm long, near the apex of the ramicaul; peduncles 2-3 mm long, confined within the spathe; floral bracts 3-4 mm long, inflated; pedicel 3-5 mm long; ovary 3-4 mm long; flowers non-resupinate creamy white, glabrous; middle sepal elliptical, subacute, 9.5 mm long, 3.5 mm wide, 3-veined; lateral sepals connate into an ovate, subacute, deeply concave synsepal, 8.5 mm long, 9 mm wide expanded, 6-veined; **petals** oblong, lightly sigmoid, acute, 8 mm long, 2 mm wide, 3-veined; **lip** deeply 3-lobed, 3 mm long, 3 mm wide across the basal lobes, the middle lobe ovoid, obtuse, minutely apiculate, deeply concave, 2 mm long, 1.5 mm wide, the basal lobes rounded, flanking the column, each 1.5 mm long, 1.5 mm wide, the base concave, firmly hinged to the base of the column; **column** stout, 1.5 mm long, the anther and the entire stigma apical, the foot rudimentary.

ECUADOR: **Napo**: epiphytic in forest near Río Quijos, alt. 1850 m, 8 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11702* (Holotype: MO); *A. Hirtz 2105* (MO), C. Luer illustr. 10501; Guacamayo Range, alt. 1950 m, 13 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11245* (MO); between Baeza and Tena, alt. 1900 m, 29 Mar. 1979, *B. Løjtnant & U. Molau 11506* (AAU, GB), C. Luer illustr. 8077.

Superficially, this species resembles *P. archidonae* or *P. pelex*, all three species being found in the same general area, the eastern slopes of the Andes in the province of Napo. *Pleurothallis megalotis* is easily identified by the fascicle of short-pedunculate, solitary flowers with a deeply incised, three-lobed lip. The middle lobe is deeply concave and the large, orbicular, basal lobes flank the column.

Pleurothallis mundula Luer & Escobar, Orquideología 16: 26, 1983.

Ety.: From the Latin diminutive of *mundus*, "pretty," referring to the flowers.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-20 cm long, with a close, tubular sheath below the middle and 2 others at the base. **Leaf** erect, coriaceous, obovate-elliptical, 4-11.5 cm long including the 1-2 cm long petiole, 2-4.5 cm wide, the obtuse apex shortly acuminate, cuneate below into the conduplicate petiole. **Inflorescence** a single flower or a loosely 2-flowered raceme 1.5-3.5 cm long including the peduncle ca. 1.5 cm long, arching to pendent, from a 1-1.5 cm long spathe at the apex of the ramicaul; floral bracts infundibular, 6 mm long; pedicel 7 mm long; ovary 5 mm long; **sepals** light rose with purple spots, glabrous, the middle sepal ovate, acute, 11.5 mm long, 4.5 mm wide, the lateral sepals uppermost, connate into a concave, ovate synsepal 11 mm long 7.5 mm wide unexpanded, the subacute apex minutely bifid; **petals** yellow, obliquely ovate, 11 mm long, 4 mm wide, broadly dilated below the middle on the lower margin, narrowed above the middle to the acute apex, entire; **lip** yellow, ovate-cordate, 5 mm long, 4 mm wide, narrowed above the middle to the acute apex, the narrowly rounded basal lobes clasping the column, the disc with a low pair of converging calli in the middle; **column** stout, 2 mm long, footless.

COLOMBIA: **Tolima**: epiphytic in cloud forest on the southern slopes of Nevado del Tolima, north of Ibague, alt. 2930 m, 21 April 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7502* (Holotype: SEL; Isotypes: COL, JAUM); western slopes of Alto de La Linea, alt. 3150 m, 8 June 1982, *D. Portillo & R. Escobar 32* (SEL).

This species has been found in both the central and the eastern cordilleras of Colombia. It is characterized by the slender ramicaul; obovate leaf; a one- to two-flowered inflorescence of spotted flowers; ventricose petals; and a deeply cordate lip with an acute apex.

Pleurothallis nutans Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 165, 1924.

Ety.: From the Latin *nutans*, "pendent," referring to the inflorescence.

Syn.: *Pleurothallis decora* Luer & Escobar, Orquideología 16: 20, 1983.

Ety.: From the Latin *decorus*, "elegant," in reference to the inflorescences.

Plant medium to large, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls erect, slender, 17-38 cm long, with a close, tubular sheath near the middle, and 2 others at the base. **Leaf** coriaceous, narrowly obovate, acute, slightly acuminate, 11-12 cm long, 2.5-5 cm wide, narrowly cuneate below to the base. **Inflorescence** 1-3 pendent, subdense, simultaneously few-flowered racemes 2-2.5 cm long including the peduncles ca. 1 cm long, the flowers non-resupinate, from a spathe 5 mm long at the apex of the ramicaul; **sepals** white, rosy white or greenish white, with or without red veins, glabrous, the middle sepal narrowly ovate, acute, 13 mm long, 5.5 mm wide, the lateral sepals uppermost, connate into a deeply concave, suborbicular synsepal, 13 mm long, 10 mm wide, the apex obtuse, minutely bifid; **petals** white or orange-brown with 3 brown veins, narrowly ovate, acute, entire, 9 mm long, 3.25 mm wide; **lip** white or yellow, ovate-cordate, 5 mm long, 3.5 mm wide, the apex obtuse, apiculate, the subacute basal lobes clasping the column, slightly thickened along the lower margins, the disc broadly lightly channeled; **column** stout, 2 mm long, footless.

COLOMBIA: **Cundinamarca**: Surroundings of Bogotá, alt. 2000-2500 m, 1921, *R. Schnitter s.n.* Holotype destroyed at B). **Norte de Santander**: Munic. of Toledo, epiphytic in cloud forest, below, Alto de Santa Inés, alt. 2050 m, 24 May 1982, *C. Luer, R. Escobar & D. Portillo 7922* (holotype of *P. decora*: SEL; isotype: JAUM; neotype of *P. nutans* here designated); Alto de Santa Inés after the pass, alt. 2100 m, 25 May 1982, *C. Luer, R. Escobar & D. Portillo 7923* (SEL, COL).

This species, apparently restricted to the Eastern Cordillera of Colombia, is characterized by a tall ramicaul; a large, narrowly obovate, subpetiolate leaf; and a few, two- to four-flowered racemes of large, rosy white to greenish white flowers. The uppermost synsepal is deeply cucullate with the petals and middle sepal pointing downward. The lip is ovate, with narrow calli on basal lobes that surround the column.

Pleurothallis orthostachys Luer & Escobar, Orquideología 16: 171, 1984.

Ety.: From the Greek *orthostachys*, "a straight spike," referring to the erect raceme.

Plant large, terrestrial, caespitose; roots slender, numerous. Ramicauls erect, stout, 45-60 cm long, with a close, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, ovate, acute, slightly acuminate, 15-20 cm long, 5-8.5 cm wide, the base sessile, rounded to cordate. **Inflorescence** 1-5, erect, subsecund, densely many-flowered raceme, 15-20 cm long including the peduncle ca. 5 cm long, from a spathe 2-2.5 cm long, at the base of the leaf, the flowers non-resupinate; floral bracts inflated, infundibular 6 mm long; pedicels 3-4 mm long; ovary 4-5 mm long; **sepals** translucent yellow, spotted and suffused with red-brown along the veins, glabrous, the middle sepal narrowly ovate, acute, 15 mm long, 5 mm wide, the lateral sepals uppermost, connate into a deeply concave, ovoid, subacute synsepal, 14 mm long, 9 mm wide unexpanded; **petals** yellow, spotted with red-brown, narrowly ovate, oblique, acute, thickened toward the apex, 13 mm long, 3.5 mm wide, 3-veined, with the margins minutely serrulate; **lip** yellow-green, broadly ovate to suborbicular, obtuse, 4.5 mm long, 4.5 mm wide, margins entire, the sides below the middle rounded and erect, each with an obtuse, conical callus, the disc with a central cavity below a transverse callus, the lip deflexed above the base, attached to the base of the column; **column** stout, 2 mm long, footless.

COLOMBIA: **Antioquia**: Yarumal, above Quebrada El Oro, alt. 1850 m, 20 May 1983, *R. Escobar & E. Valencia 2622* (Holotype: SEL); C. Luer illustr. 9144.
ECUADOR: without locality, collected and cultivated in San Francisco, California, 1997, by *W. Teague 267* (MO).

This species is known from only two widely separated localities, one in Colombia and the other in Ecuador. It is characterized by a large habit and an erect, many-flowered raceme as long as or longer than the ovate, sessile leaf. The spotted sepals and petals are not unlike those of several other related species, but the rounded lip is distinct with a pair of conical calli within the margins below the middle, and a central cavity below a transverse callus near the middle.

Pleurothallis pelex Luer, Selbyana 5: 173, 1979.

Ety.: From the Greek *pelex*, "a helmet," in allusion to the concave, uppermost synsepal.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 13-25 cm long, with a close, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, very narrowly ovate, acute, attenuate, 10-17 cm long, 1.2-1.8 cm wide, the base subcordate, rounded, sessile. **Inflorescence** a single, more or less pendent flower, produced 1 or 2 simultaneously by slender peduncles 10 mm long, within the spathe 1.5-2.5 cm long at the base of the leaf; floral bracts infundibular, 10-15 mm long; pedicels slender, arching, 2-3 cm long; ovary 6-8 mm long; flowers non-resupinate: **sepals** yellow, glabrous, the middle sepal elliptical-ovate, subacute, 11 mm long, 5 mm wide, 5-veined, the lateral sepals completely connate into a deeply concave, ovoid, obtuse, cymbiform synsepal, 11 mm long, 8 mm wide unexpanded, 6-veined; **petals** yellow, glabrous, elliptical, oblique, acute, 9 mm long, 3.5 mm wide, 5-veined; **lip** yellow, thick, suborbicular-trilobed, 3.5 mm long, 4 mm wide, with the apex broadly rounded, entire, the basal lobes 1.5 mm long, encircling the column, with an erect, cone-shaped callus on each basal lobe to either side of the column, the base shortly deflexed, connected to the obsolescent column-foot; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR; **Napo**: forest north of Baeza, alt. 1500 m, 10 Aug. 1978, *C. Luer, J. Luer, A. Andreetta & A. Hirtz 3183* (Holotype: SEL).

This species is closely related to *P. archidonae*, but differs from the latter by very narrowly ovate leaves that are subcordate at the sessile base, instead of elliptical with a narrowly cuneate base. The flowers of *P. pelex* are single and borne by long, arching pedicels and peduncles, while the flowers of *P. archidonae* are borne by short pedicels, usually in subcongested two-flowered racemes. Except for the pure yellow color of *P. pelex* instead of mottled purple, the morphology of the floral parts are essentially identical.

Pleurothallis phratria Luer & Hirtz, Lindleyana 11: 179, 1996.

Ety.: From the Greek *phratrios*, "of the clan," referring to the relationship to those species related to *P. lindenii*.

Plant large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 10-33 cm long, with a close, tubular sheath below the middle and 2 other sheaths at the base. **Leaf** erect, thinly coriaceous, narrowly elliptical, acute, petiolate, 15-27 cm long, 2.5-5 cm wide, the base narrowly cuneate into a slender petiole 2-3 cm long. **Inflorescence** a pendent, loosely few-flowered raceme 5-6 cm long including the peduncle ca. 3 cm long, from a spathe 5 mm long with an annulus 4-5 mm below the apex of the ramicaul; floral bracts infundibular, 7-8 mm long; pedicel 6 mm long; ovary 5 mm long; **sepals** translucent with broad purple stripes, glabrous, the dorsal sepal elliptical, acute, 11-14 mm long, 3.5-4 mm wide, 3-veined, the lateral sepals connate into a concave, ovate, subacute synsepal, 10-13 mm long, 8-9 mm wide unexpanded, 4-veined; **petals** purple, narrowly ovate, acute, 10-12 mm long, 2.5-3.5 mm wide, 3-veined; **lip** yellow with 3 red stripes, cordate-ovate, 4.5 mm long, 4.5 mm wide, the apex obtuse, the margins entire, the disc shallowly concave, with a pair of low, orbicular calli at the base, the base shortly but acutely deflexed between obtuse basal angles; **column** terete, 1.5 mm long, the foot obsolescent, the unhooded anther, rostellum and stigma apical.

ECUADOR: **Tungurahua**: epiphytic in forest along Río Negro, alt. 1,400 m, 13 Oct. 1984, *A. Hirtz & C.H. Dodson 2028* (Holotype: MO); near Volcán Tungurahua, collected and cultivated by J. Brenner in Puyo, flowered in cultivation 2 Aug. 1977, *C. Luer 1797* (SEL). Morona-Santiago: between Sigsig and Chiguinda, alt. 2500 m, 11 Aug. 1990, *A. Hirtz 5063* (MO). **Pastaza**: Mera, alt. ca. 1100 m, 8 Feb. 1956, *E. Asplund 20528* (S).
COLOMBIA: **Valle de Cauca**: Cali, Farallones de Cali, alt. 1500 m, 22 Nov. 1975, *D. Hartman 115* (CUVC).

This large species is related to the widely distributed *P. lindenii*, but it is distinguished by the slender ramicauls, many of which are shorter than the narrowly elliptical, narrowly petiolate leaves. The striped flowers are similar to those of *P. lindenii*, but the lip is cordate and entire with small basal calli.

Pleurothallis pulcherrima Luer, sp. nov.

Ety.: From the Latin superlative *pulcherrimus*, "very pretty," referring to qualities of the plant.

Inter species subsectionis *Macrophyllae-Racemosae* planta mediocris, folio cordato, sepalis petalisque maculatis et petalis oblique ellipticis acutis, et labello cordato subacuto cum lobis basalibus elongatis differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 15 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, ovate, acute, 9 cm long, 3 cm wide, the base cordate, sessile. **Inflorescence** an arching, pendent, lax, several-flowered raceme, 7-8 cm long, produced from a spathe 1.2 cm long at the base of the leaf; peduncle slender, ca. 2 cm long; floral bracts tubular, 3-3.5 mm long; pedicels 2-3 mm long; ovary curved, 1.5-2 mm long; flowers non-resupinate; **sepals** light green, spotted with red-brown, glabrous, the middle sepal ovate, acute, 7.5 mm long, 2.5 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, cymbiform, acute synsepal, 7.5 mm long, 4 mm wide unexpanded, 6-veined; **petals** heavily spotted with red-brown, glabrous, obovate, oblique, acute, 7 mm long, 2 mm wide, 3-veined; **lip** green, faintly marked with brown, thick, cordate-subtrilobed, entire, 1.5 mm long, 1.5 mm wide unexpanded, with the apex obtuse, acuminate, incurved, the basal lobes erect, obtuse, encircling the column, the disc shallowly concave between a pair of rounded calli above the base, the base shortly acutely deflexed, connected to the obsolescent column-foot; **column** stout, terete, 1 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Carchi**: forests between Maldonado and Chical, alt. 1400 m, collected July 1991, cultivated at Chamblee, GA, 22 Dec. 1991, *F L Stevenson 91-1222-2* (Holotype: MO), C. Luer illustr. 16315.

This species is apparently rare in northernmost Ecuador, having been found but once in an orchid-rich area that has been searched repeatedly. Among members of the subsection it is distinguished by the ovate, sessile, cordate leaf, and a raceme about equally long. The sepals are green with large, red-brown spots instead of stripes, and the petals are proportionately large and heavily spotted. Except for its much smaller size, the lip is also similar but with the basal lobes longer and encircling the column.

Pleurothallis serpens Luer & Escobar, Orquideología 16: 31, 1933.

Ety.: From the Latin *serpens*, "creeping," referring to the repent rhizome.

Plant medium in size, epiphytic, repent, the elongated rhizome slender, 1-2.5 cm long between ramicauls, rooting at internodes, the roots slender. Ramicauls slender, erect, 4-19 cm long with a close tubular sheath below the middle and 1-2 others at the base. **Leaf** suberect, thinly coriaceous, narrowly elliptical, acute, acuminate, 6-14 cm long including a 1-2 cm long petiole, 1.75-2.75 cm wide, the base acuminate into the slender petiole. **Inflorescence** a 2- to 3-flowered, pendent raceme 2-3.5 cm long, from a 3 mm spathe at the apex of the ramicaul; floral bract 4 mm long; pedicel 5 mm long; ovary 4 mm long; flowers non-resupinate; **sepals** translucent colorless, lined or suffused with purple, or yellow, glabrous, the middle sepal elliptical, acute, 10 mm long, 4 mm wide, the lateral sepals uppermost, connate into a concave, ovate, acute synsepal, 10 mm long, 6 mm wide unexpanded; **petals** purple or yellow, ovate, 8.5 mm long, 2.5 mm wide, narrowly linear above the middle, the lower margin broadly dilated below the middle; **lip** purple or yellow, transversely trilobed-cordate, 2.25 mm long, 2.75 mm wide, the transverse apex shortly acuminate, the base with rounded lobes to either side of the column, the disc with a pair of low, more or less lunate calli near the center; **column** stout, 1.5 mm long, footless.

COLOMBIA: **Santander**: cloud forest between Bucaramanga and Berlin, alt. 2600 m, 28 April 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7625* (Holotype: SEL; Isotypes: COL, JAUM). **Norte de Santander**: cloud forest north of Toledo, Páramo de Mefue, alt. 2600 m, 12 May 1982. *C. Luer & R. Escobar 7809* (SEL): subparamo cloud forest below Páramo de Jurisdicciones, alt. 2600 m, 1 May 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7626* (COL, JAUM, SEL); above La Baja, trail to Vetas, alt. 2900 m, 21 May 1982, *C. Luer, R. Escobar & D. Portillo 7892* (AAU, SEL); between Bucaramanga and Berlin, alt. 2650 m, 28 April 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7616* (SEL).

This species is apparently confined to the Eastern Cordillera of Colombia. The repent rhizome is an exception in this subsection. In addition, it is characterized by an elliptical leaf acuminate at both ends; a few-flowered, pendent raceme; petals dilated above the base; and a small, transversely three-lobed lip with a central pair of curved calli. The color of the flowers varies from purple-striped to pale yellow.

Pleurothallis steyermarkii C.Schweinf., Fieldiana Bot. 28: 185, 1951.

Ety.: Named in honor of the voluminous collector, Julian A. Steyermark.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls relatively slender, erect, 40-65 cm long, with a tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical, acute, acuminate, 15-23 cm long, 5-7 cm wide, cuneate below into a petiole 2-2.5 cm long. **Inflorescence** 1 or 2 loosely several-flowered, pendent, up to 11 cm long including the peduncle ca. 3 cm long, from a spathe ca. 5 mm long, at the apex of the ramicaul; floral bracts 5 mm long; pedicels 5 mm long; ovary 3 mm long; **sepals** dark purple, glabrous, membranous, the dorsal sepal ovate, acute, 8-11 mm long, 3-4 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, cymbiform, obtuse synsepal, 8-10 mm long, 7-8 mm broad unexpanded, 6-veined; **petals** purple, glabrous, fleshy, narrowly ovate, acute, lightly oblique, erect, 8-10 mm long, 2 mm wide, 3-veined; **lip** purple, 3-lobed, 3.5 mm long, 3 mm wide, the middle lobe triangular, acute, the basal lobes obliquely oblong, obtuse, surrounding the column, the disc with a small pair of rounded calli at the base, the base acutely deflexed upon itself, attached to the base of the column; **column** stout, terete, 2 mm long, the foot obsolescent, the anther apical, the rostellum and stigma subapical.

VENEZUELA: **Táchira**: Páramo de Tamá, Quebrada de Palmar, alt. 2500 m, 14 July 1944, *J. A. Steyermark 57246* (Holotype: F: Isotype: AMES, NY), C. Luer illustr. 17193.

This apparently rare species is known only from the original collection by Steyermark in the mountains of westernmost Venezuela. It was not seen by Dunsterville, and it is not included in *Venezuelan Orchids*. Vegetatively and florally it is similar to *P. lindenii* and its closer relatives, but the distinctive three-lobed lip immediately distinguishes it. The anterior lobe is triangular and acute while the obliquely oblong basal lobes surround the column.

Pleurothallis strobilifera Schltr., Bot. Jahrb. Syst. 26: 440, 1899.

Ety.: From the Latin *strobilifer*, "cone-bearing," referring to the inflorescence.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 20-47 cm long, with a tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 22-33 cm long, 2.5-4 cm wide, narrowly cuneate below into a petiole 2-2.5 cm long. **Inflorescence** a congested fascicle of short few-flowered racemes, 2.5-4.5 cm long including the peduncle ca. 1 cm long, more or less suberect, from within an ovate spathe 8-10 mm long, at the apex of the ramicaul; floral bracts loose, 5-6 mm long; pedicels 4-5 mm long; ovary 5-6 mm long; **sepals** purple, glabrous, membranous, the dorsal sepal ovate, acute, 10.5 mm long, 5.5 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, subglobose, obtuse synsepal, 9 mm long and broad unexpanded, 6-veined; **petals** purple, glabrous, fleshy, ovate, acute, oblique, erect in the flower covering the dorsal sepal, 9.5 mm long, 3.25 mm wide, 3-veined; **lip** purple, thick, transversely ovate, suborbicular, the apex broadly rounded, minutely apiculate, 2 mm long from the base to the apex, 4 mm long from the far edge of the basal lobes, 5 mm wide, with the basal lobes rounded and surrounding the column, the disc shallowly channeled between low calli on either side, acutely deflexed upon itself above the base, the base short, reflexed, inflexibly attached to the base of the column; **column** stout, terete, 2 mm long, the foot obsolescent, the anther apical, the rostellum and stigma subapical.

COLOMBIA: **Antioquia**: forest above Abriaquí, alt. 2500 m, Oct. 1884, *F.C. Lehmann 8199* (Holotype destroyed at B, Lectotype here designated: K; Isolectotype: AMES, K), C. Luer illustr. 16991; along Río Piedras above La Ceja, alt. 2400 m, 20 Feb. 1883, *F.C. Lehmann 3181* (G); La Ceja, epiphytic in forest along a stream near the abandoned copper mine above La Ceja, alt. 2400 m, 16 Apr. 1988, *C. Luer, J. Luer, R. Escobar, M. & O. Robledo & W. Teague 13189* (MO); El Retiro, collected above Colomborquídeas by Pacho et al., alt. ca. 2400 m, 9 May 1994, *C. Luer 16731* (MO); forest remnant east of Santo Domingo, alt. 2170 m, 12 May 1985, *C, Luer, R. Escobar & E. Valencia 11350* (MO); Concepción, between Barbossa and Concepción, alt. 2380 m, 12 Apr. 1988, *C. Luer, J. Luer & R. Escobar 13171* (MO); El Carmen, above San Lorenzo, alt. 2500 m, 21 Mar. 1989, *C. Luer, J. Luer & W. Teague 14336* (MO); alto de Cocorná, alt. 2200 m, collected by E. Valencia, cultivated at Colomborquídeas, 26 Mar. 1997, *R. Escobar 8288* (MO).

This large species is not uncommon in the Central Cordillera of Colombia where it was first collected by Consul Lehmann. It is distinguished by the long ramicauls; long, acute, narrowly elliptical, distinctly petiolate leaves; and short, few-flowered,

fascicled racemes at the apex of the ramicaul. The dorsal sepal is held erect from the subglobose synsepal, and the pair of petals stands erect, side by side in front of the dorsal sepal. The lip is transversely suborbicular, and with basal lobes encircling the column. The flowers are either yellow or purple.

Pleurothallis subreniformis Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 64, 1921.

Ety.: From the Latin *subreniformis*, "almost kidney-shaped," referring to the labellum.

Syn.: *Pleurothallis lindenii* var. *gigantea* Rchb.f., Bonplandia 3: 240, 1855.
Ety.: From the Latin *giganteus*, "gigantic," referring to the huge habit.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 40-92 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, broadly elliptical, obtuse, shortly acuminate, 25-31 cm long, 8-14 cm wide, cuneate below, contracted into a stout petiole 2-3 cm long. **Inflorescence** 1 to 4 arching to pendent, laxly few-flowered racemes, 5-8 cm long including the peduncle ca. 2 cm long, produced from a spathe ca. 1 cm long at the base of the petiole; floral bracts infundibular, 6-8 mm long; pedicels 7 mm long; ovary 3-4 mm long; flowers non-resupinate; **sepals** glabrous, rose or yellow, the middle sepal narrowly ovate, acute, 12 mm long, 4.5-5.5 mm wide, 3-veined, the lateral sepals completely connate into a deeply concave, cymbiform, obtuse, slightly acuminate synsepal, 11-12 mm long, 8-9 mm wide unexpanded, 6-veined; **petals** cellular-glandular, thick, linear-ovate, acute, 10 mm long, 2 mm wide, 3-veined. **lip** thick, hippocrepiform, geniculate, 3 mm long medially, 4.5-5 mm wide expanded, with the apex thick, subacute, entire, the basal lobes rounded, erect, surrounding the column, the disc with a pair of obscure, low, rounded calli at the base, the base shortly acutely reflexed, connected to the obsolescent column-foot; **column** stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Pichincha**: in temperate forests of Finca San Florencio, Sept. 1873, *A. Sodiro s.n.* (Holotype destroyed at B, Neotype here designated: *A. Sodiro s.n.* QPLS), C. Luer illustr. 18780; Valley of Lloa, *W. Jameson 326* (holotype of var. *gigantea*: AMES; isotype: LE). **Carchi**: between Tulcán and Maldonado, alt. 3000 m, Sept. 1998, *A. Hirtz 6623* (MO). **Imbabura**: Cerro Muenala, above Río Asabi, alt. 8,500 ft., 3 Dec. 1943, *W.B. Drew-49* (AMES); Selva Alegre, *A. Hirtz 1926* (MO), C. Luer illustr. 14821.

This gigantic species occurs infrequently in the mountainous forests of north western Ecuador. It was first collected by Father Sodiro in the nineteenth century. Although the dimensions of the sepals and petals of the two collections cited above are somewhat smaller than those published by Schlechter, there can be little doubt that they represent the same species. The ramicauls are sometimes nearly a meter in length, the leaves are large and petiolate, and the few racemes are arching and loosely few-flowered. The deeply concave synsepal is uppermost in the pendent flower. The petals are narrow and fleshy. The lip is horseshoe-shaped with large basal lobes surrounding the column. The apex is broad with a thick, obtuse tip.

Pleurothallis torrana Luer, Orquideología 20: 231, 1996.

Ety.: Named for Cerro del Torrá where the species is apparently endemic.

Plant large, terrestrial, caespitose; roots densely fasciculate, slender. Ramicauls slender, erect, prolific, 17-35 cm long, with a tubular sheath low on the ramicaul and 2-3 others at the base. **Leaf** erect, coriaceous, ovate, slightly acuminate, acute, 13-14 cm long, 6.5-7 cm wide, the base sessile, cordate. **Inflorescence** an arching, pendent, loosely few-flowered raceme ca. 8 cm long including the peduncle 2-3 cm long, subtended by a spathe ca. 8 mm long at the base of the leaf; floral bracts 3-4 mm long; pedicels slender, 4-5 mm long; ovary 3-4 mm long; **sepals** translucent purple, glabrous, the middle sepal narrowly ovate, acute, 12 mm long, 3.75 mm wide, 3-veined, the lateral sepals connate into an ovate, acute, deeply concave uppermost synsepal, 12 mm long, 8 mm wide expanded, 6-veined; **petals** purple, glabrous, ovate, oblique, acute, acuminate serrulate, 9.5 mm long, 2.5 mm wide, 3-veined; **lip** purple, 3-lobed-subrhombic, 2.25 mm long, 4.25 mm wide across the lobes expanded, the apex and lateral lobes obtuse, with rounded basal lobes encircling the column, the disc smooth, broadly callous, with a small, transverse callus at the deflection of the short claw, deflexed below, hinged to the base of the column; **column** stout, 1.5 mm long, footless, the anther, rostellum and stigma apical.

COLOMBIA: **Chocó**: Munic. San José del Palmar, Cerro del Torrá, epiphytic in cloud forest above the heliport, alt. 1920-1950 m, 11 Aug. 1988, National Geographic Society grant 3884-88, *P. Silverstone-Sopkin, N. Paz, R. T. González, J. E. Ramos, L. H. Ramos & A. Henao 4334* (Holotype: CUVC; Isotype: MO), C. Luer illustr. 16336; same locality, 7 Jan. 1984, *P. Silverstone-Sopkin, N. Paz, A. Duque & H. Bayona 1605* (CUVC, MO).

This species is apparently endemic on the isolated Cerro Torrá in the Western Cordillera of Colombia. It is distinguished by the prolific ramicauls and large, cordate, sessile leaves. The few-flowered raceme droops to bear the flowers in a non-resupinate position. The petals are minutely serrate. The lip is subrhombic in outline with the angles obtuse. Rounded basal lobes surround the column.

Pleurothallis uvifera Luer & Escobar, Orquideología 16: 36, 1983.

Ety.: From the Latin *uvifer*, "grape-bearing," referring to the appearance of the globose flower.

Plant medium to large, epiphytic, densely caespitose; roots slender, fasciculate. Ramicauls erect, slender, 10-20 cm long with a close, tubular sheath below the middle and another 1-2 sheaths at the base. **Leaf** erect, thinly coriaceous, oblong, acuminate, acute, 11-14.5 cm long, 2-3.8 cm wide, the base cuneate into a distinct, channeled petiole 1.5 cm long. **Inflorescence** a succession of solitary, nutant flowers produced from within a slender, 1 cm long spathe at the apex of the ramicaul; peduncle 6-15 mm long; floral bract 5-7 mm long; pedicel 10-15 mm long; ovary curved, 7 mm long; **sepals** translucent light yellow, glabrous, the dorsal sepal ovate, acute, 15 mm long, 5.5 mm wide, 3-veined, the lateral sepals connate into a deeply concave, ovate, obtuse, minutely bifid synsepal, 15 mm long, 10 mm wide, 14 mm wide expanded; **petals** yellow, spotted with purple, ovate-falcate, acute, 12 mm long, 4.75 mm wide, 3-veined; **lip** lemon yellow, suborbicular-cordate, 4.5 mm long, 4.5 mm wide, the apex rounded, apiculate, the disc with a pair of low, longitudinal central calli, the base deeply cordate, the basal lobes rounded, embracing the column, each with a low, rounded callus to either side of the glenion; **column** terete, 2 mm long, footless.

COLOMBIA: **Norte de Santander**: epiphytic in cloud forest below Paramo de Jurisdicciones, alt. 2600 m, 11 Nov. 1981, *C. Luer, J. Luer, R. Escobar & D. Portilla 6634* (Holotype: SEL).

This species, known only from the original collection in the Eastern Cordillera of Colombia, is closely allied to the sympatric but more widely distributed *P. inflata*. Both are characterized by a single, pendent flower. *Pleurothallis uvifera* is distinguished by a pair of calli on the disc of the lip, and another callus on each of the basal lobes that surround the column.

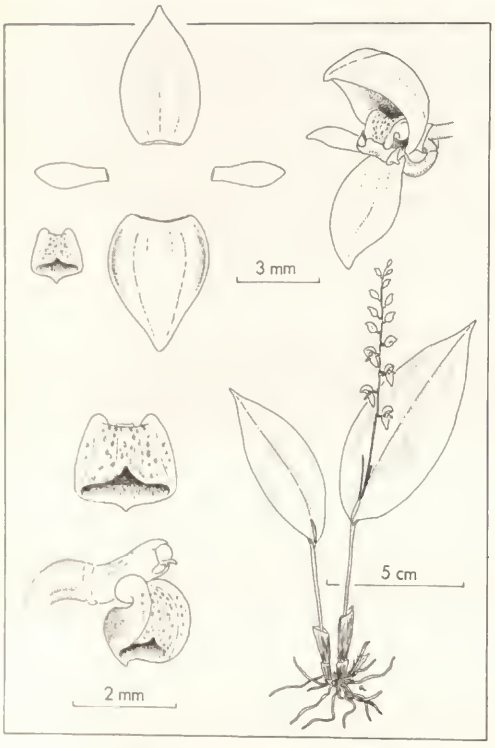


Fig. 1. Pleurothallis alveolata

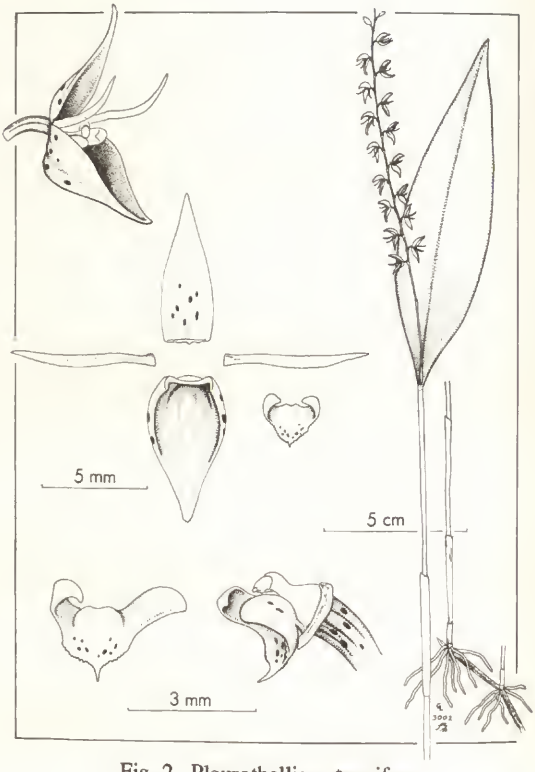


Fig. 2. Pleurothallis antennifera

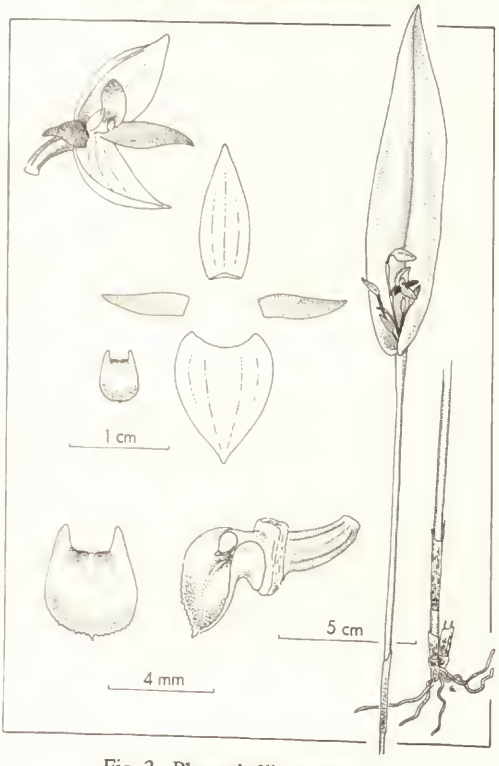


Fig. 3. Pleurothallis aporosis

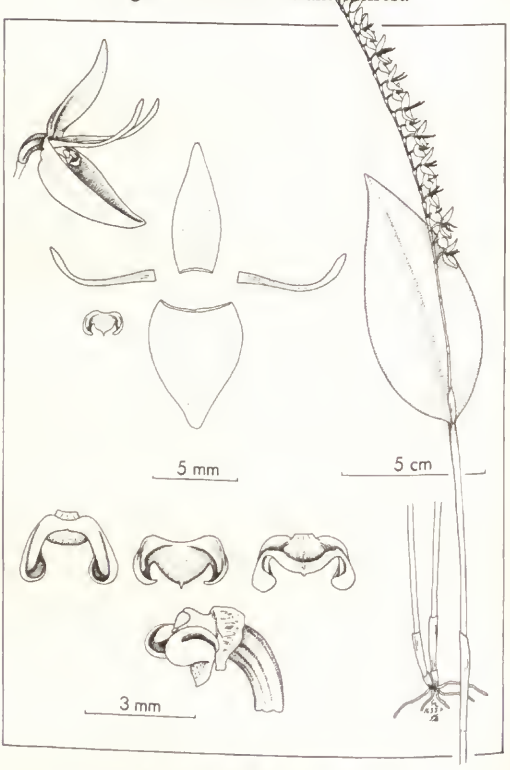


Fig. 4. Pleurothallis bicochlearis

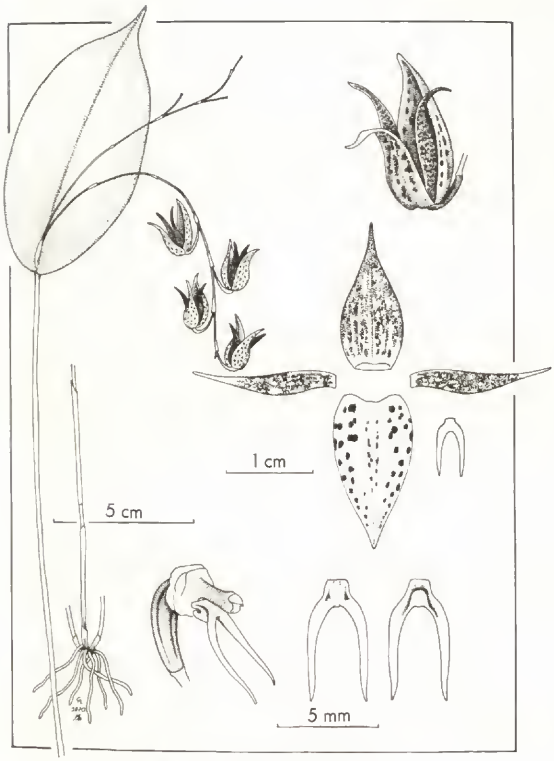


Fig. 5. Pleurothallis bicruris

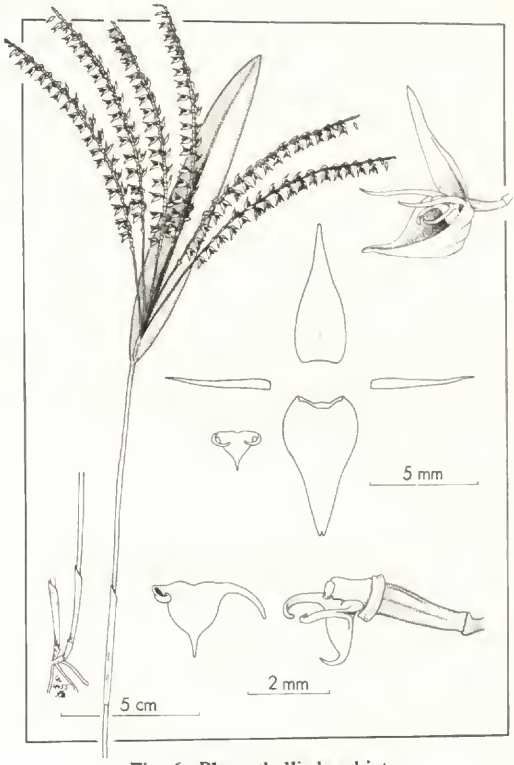


Fig. 6. Pleurothallis brachiata

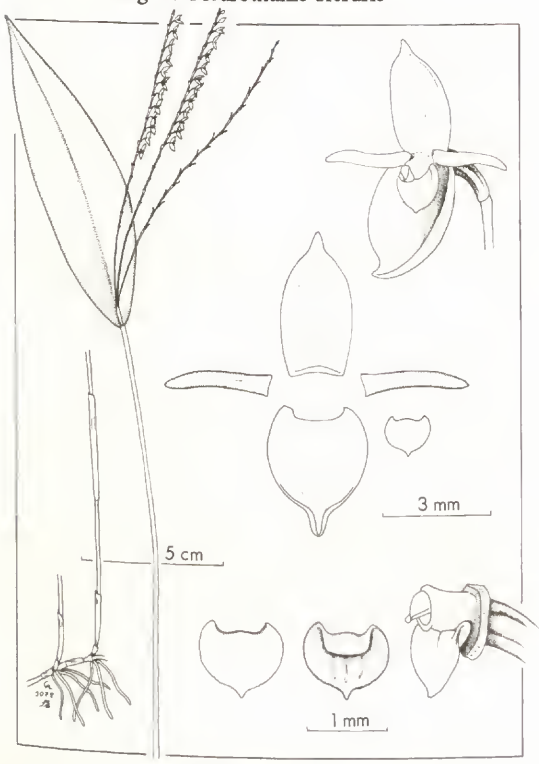


Fig. 7. Pleurothallis cymbisepala

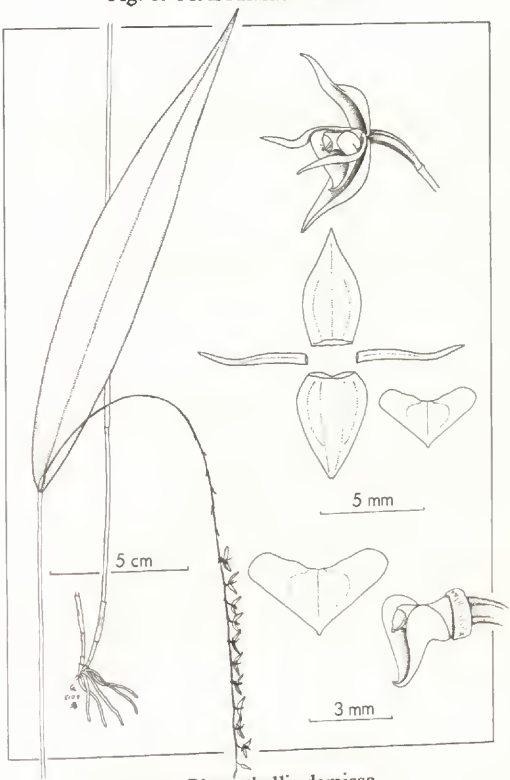


Fig. 8. Pleurothallis demissa

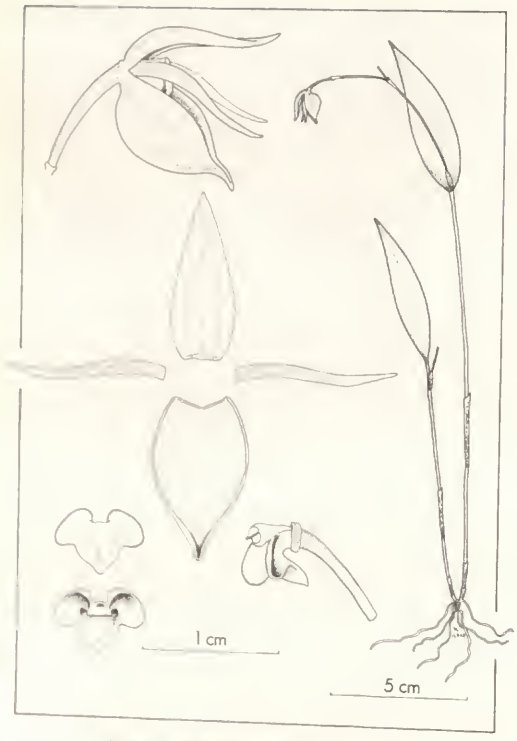


Fig. 9. Pleurothallis eccentrica

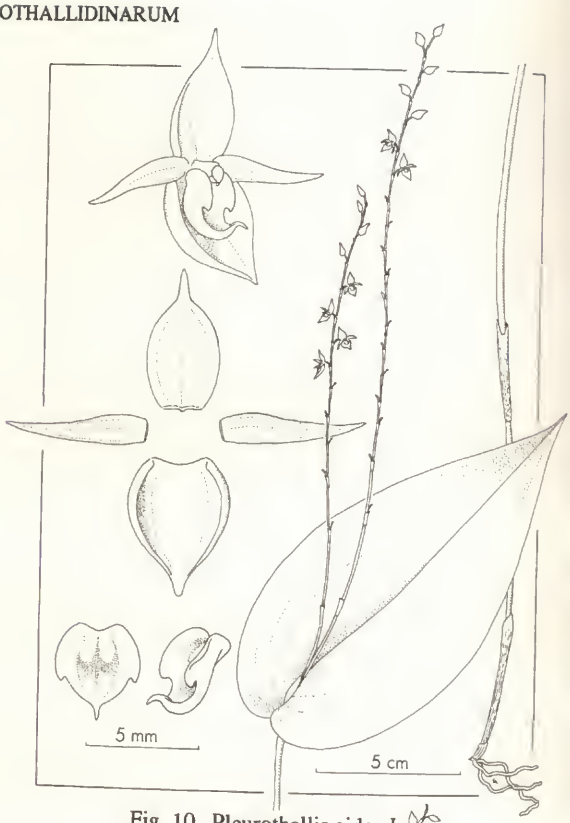


Fig. 10. Pleurothallis eidos Luer

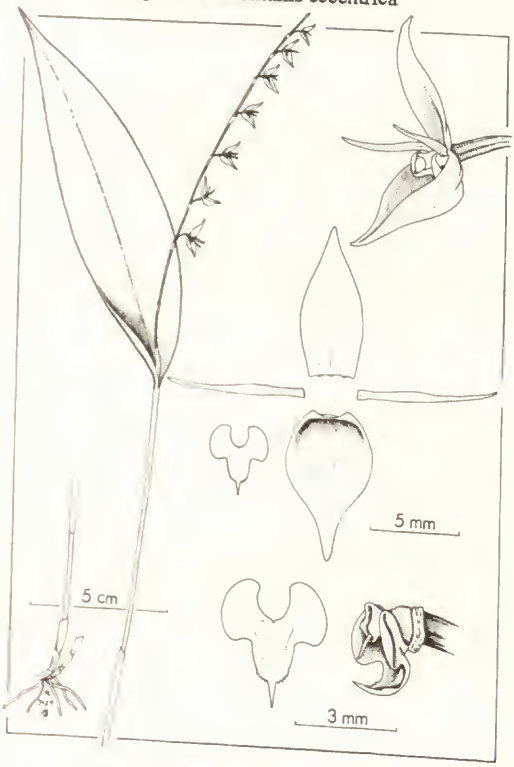


Fig. 11. Pleurothallis genychila

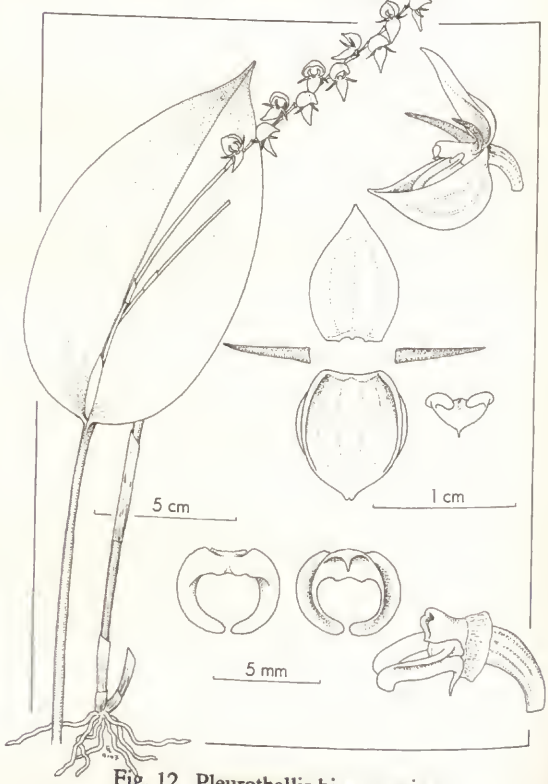


Fig. 12. Pleurothallis hippocrepica

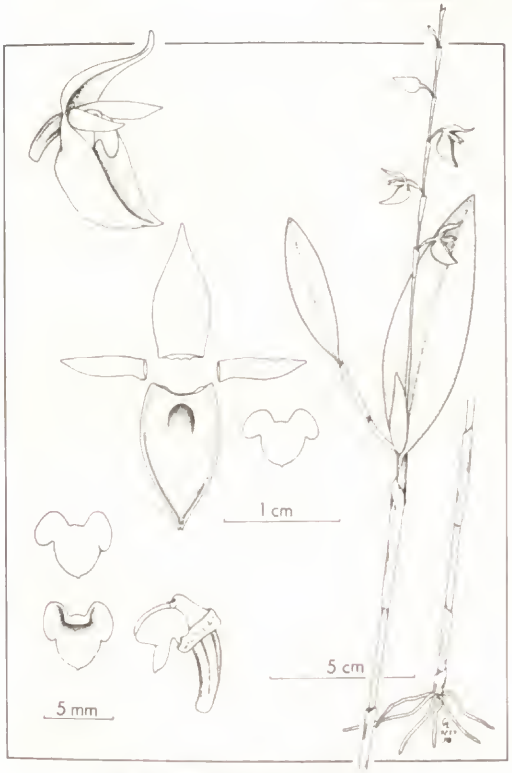


Fig. 13. Pleurothallis hjertingii

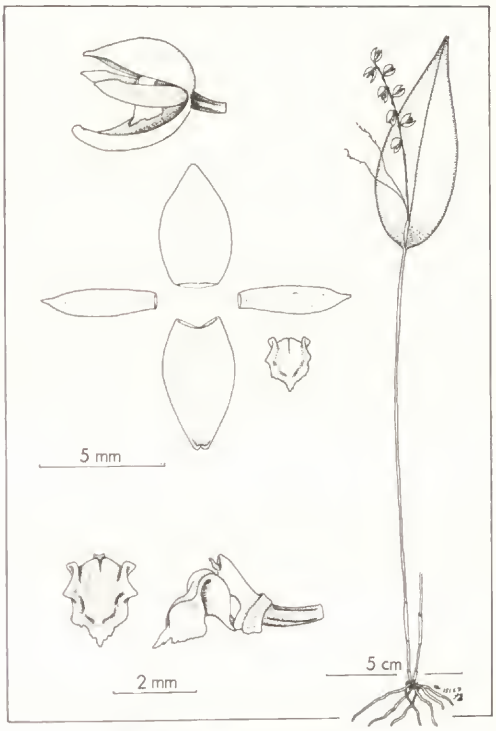


Fig. 14. Pleurothallis imbaburae

Fig. 15. Pleurothallis lenae

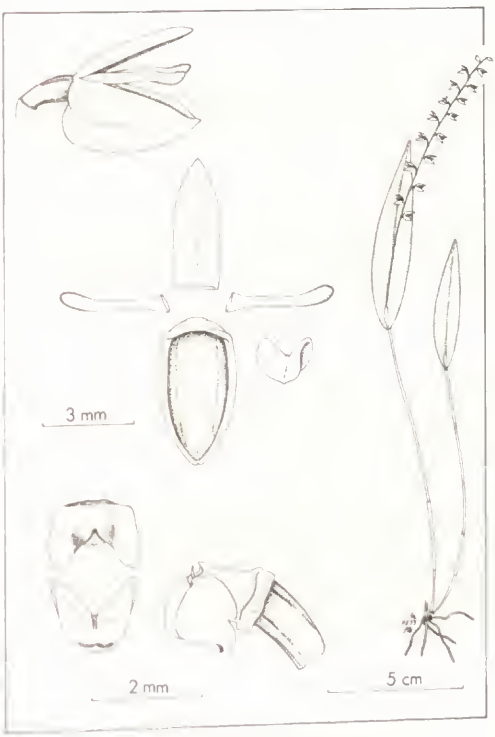


Fig. 16. Pleurothallis loejtnantii

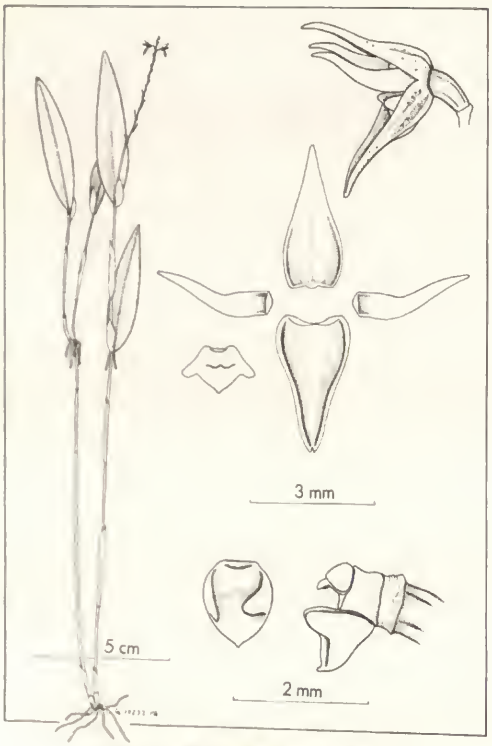


Fig. 17. Pleurothallis madsenii

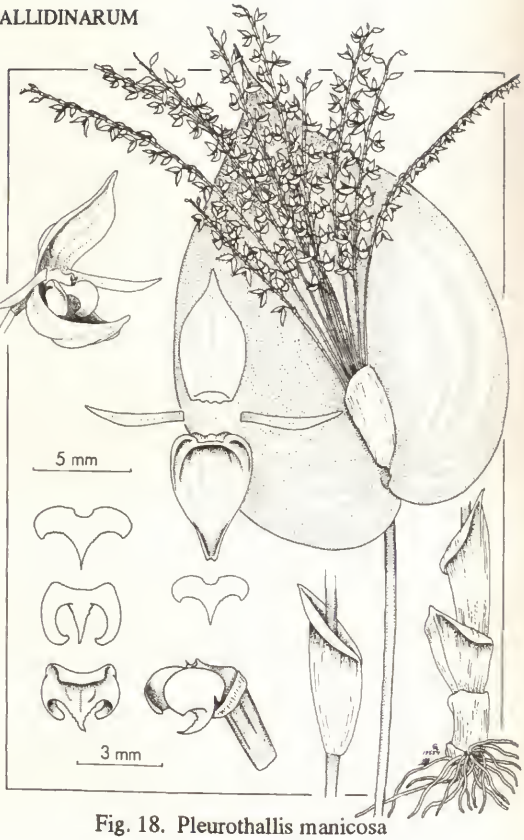


Fig. 18. Pleurothallis manicosa

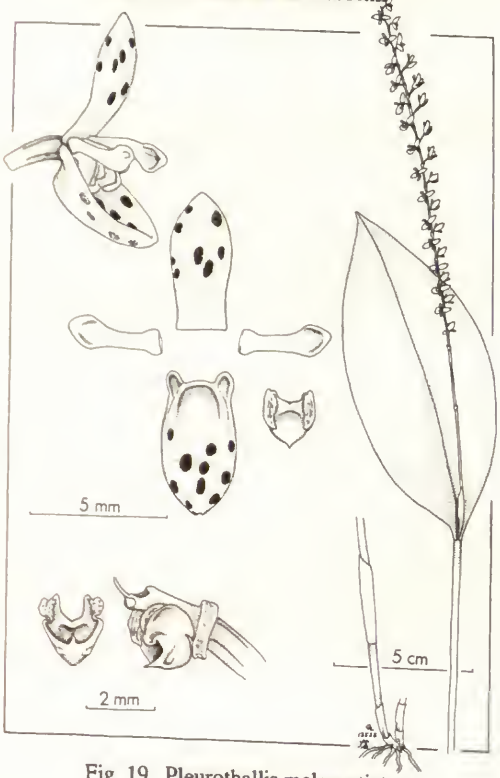


Fig. 19. Pleurothallis melanosticta

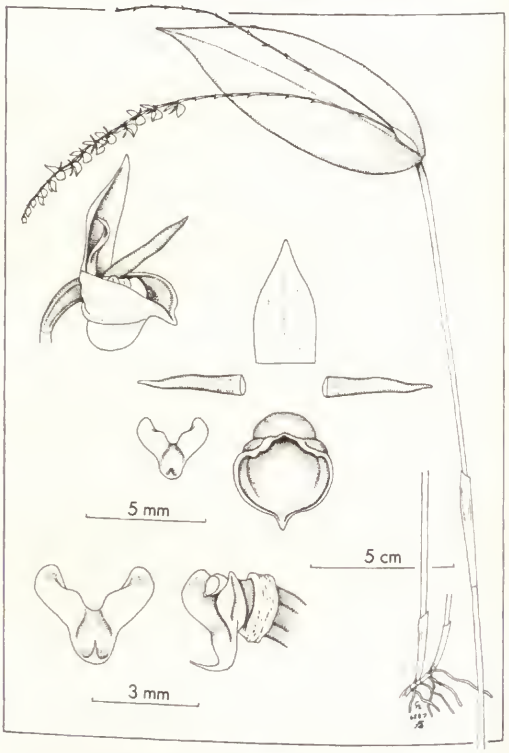


Fig. 20. Pleurothallis nasiterna

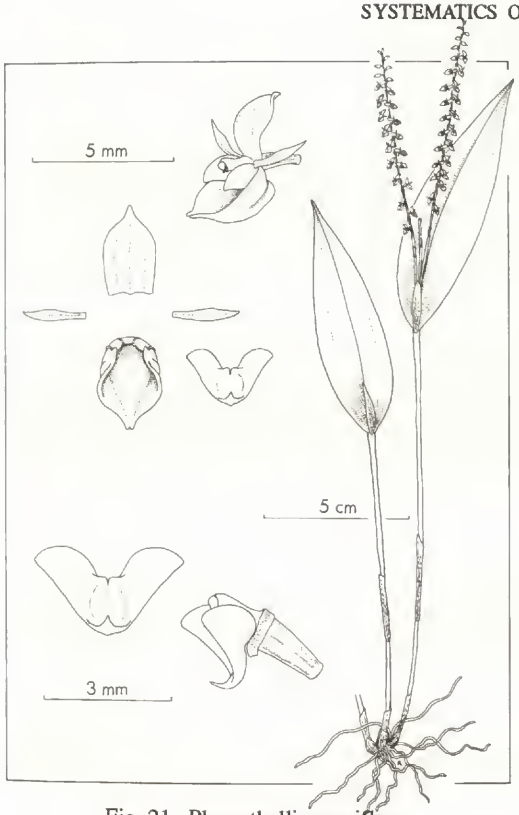


Fig. 21. Pleurothallis parviflora

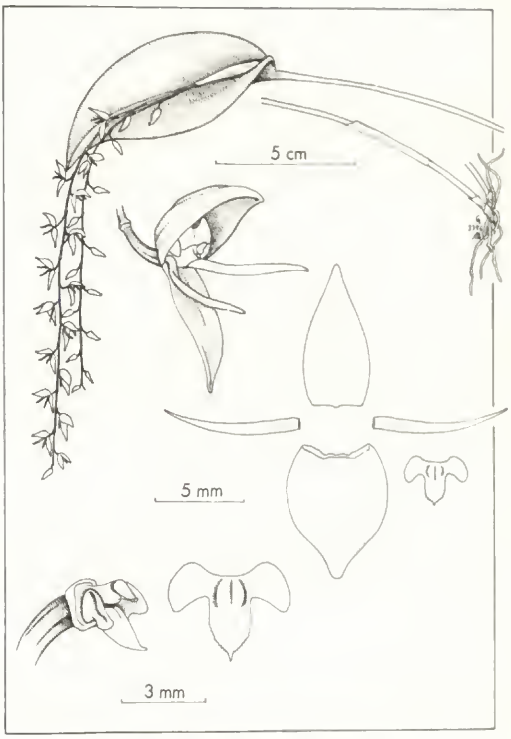


Fig. 22. Pleurothallis penduliflora

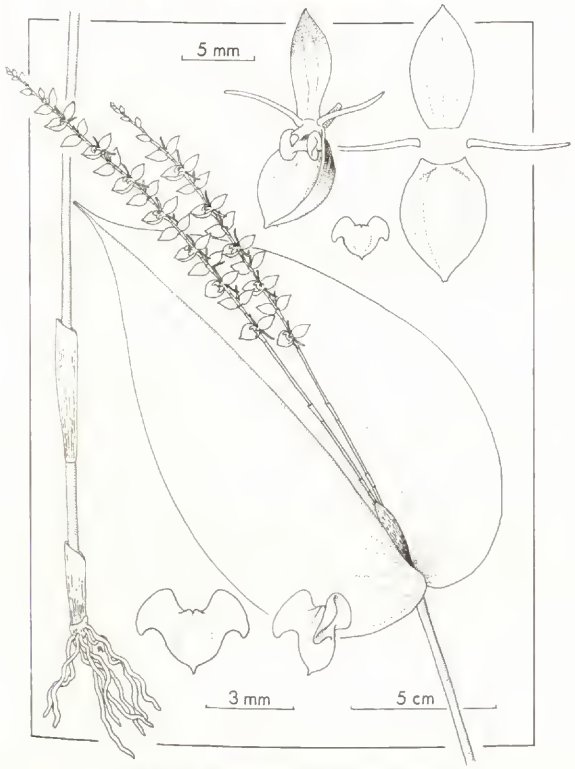


Fig. 23. Pleurothallis penduliflora

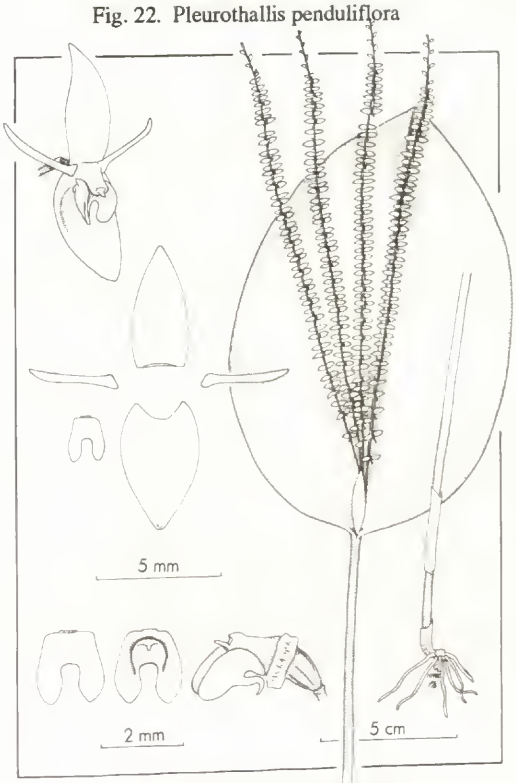


Fig. 24. Pleurothallis ptychophora

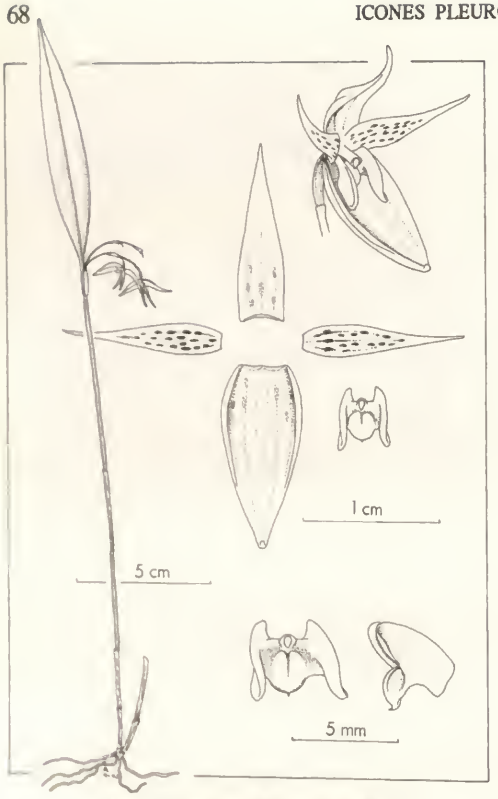


Fig. 25. Pleurothallis pulvinaris

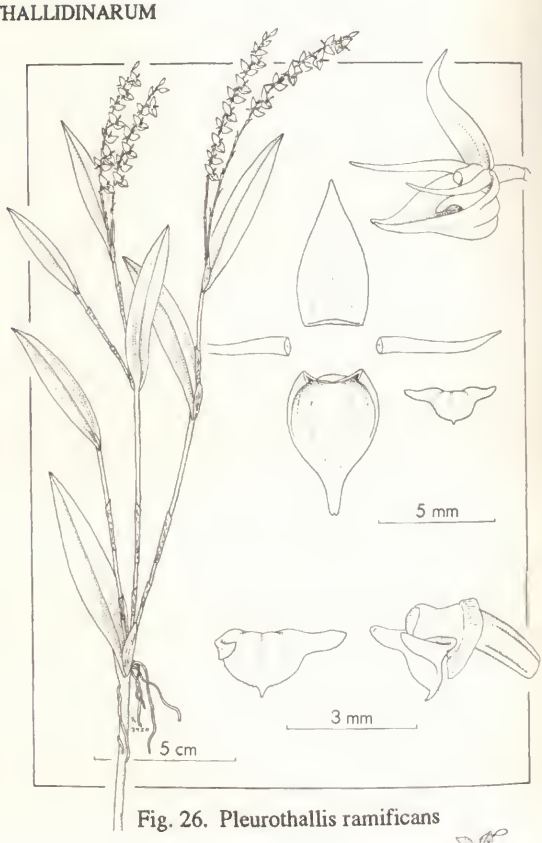


Fig. 26. Pleurothallis ramificans

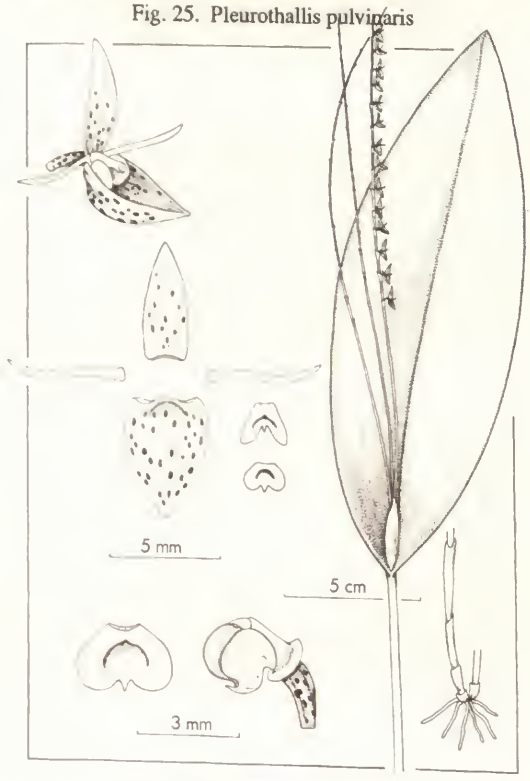


Fig. 27. Pleurothallis revoluta

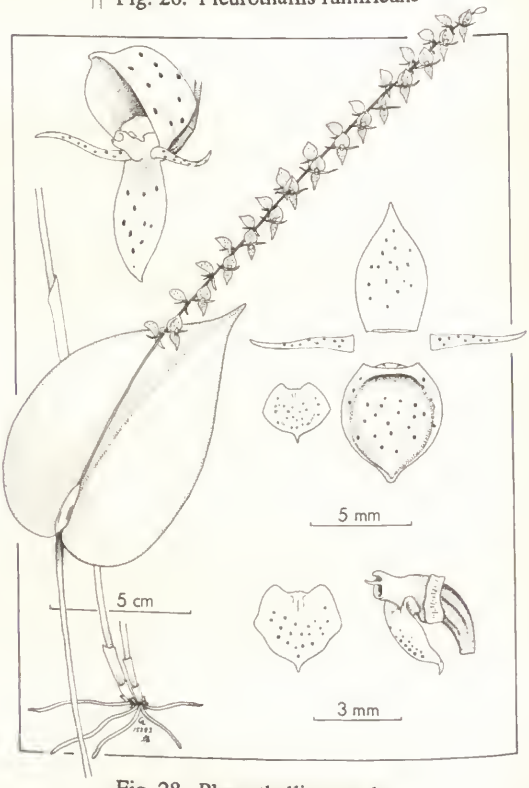


Fig. 28. Pleurothallis roseola

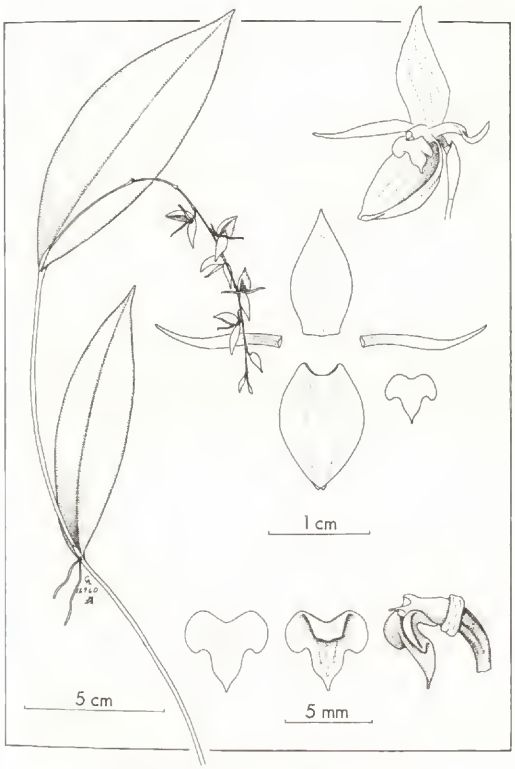


Fig. 29. Pleurothallis saltatoria

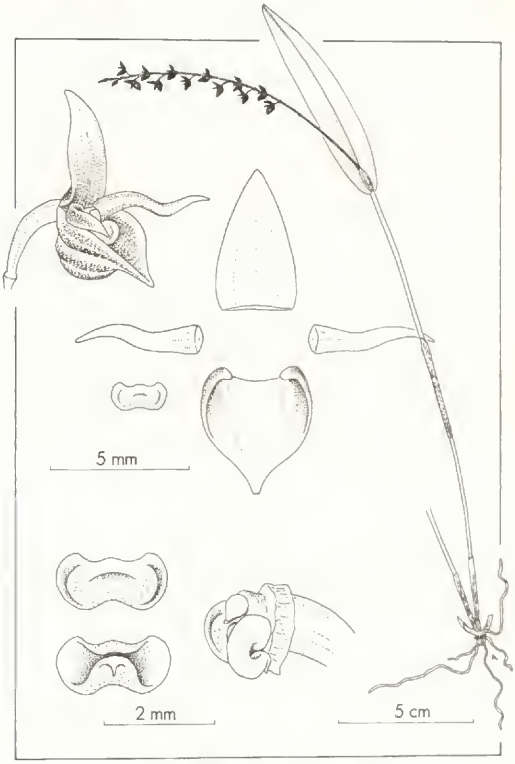


Fig. 30. Pleurothallis scintillata

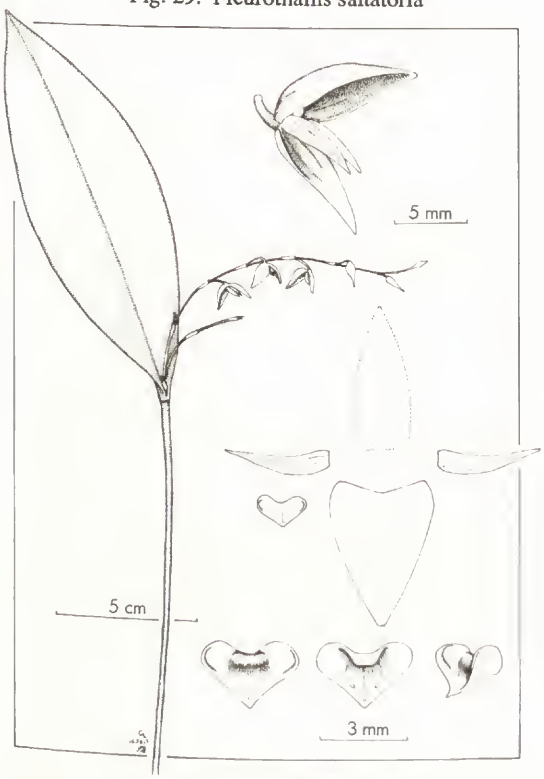


Fig. 31. Pleurothallis secunda

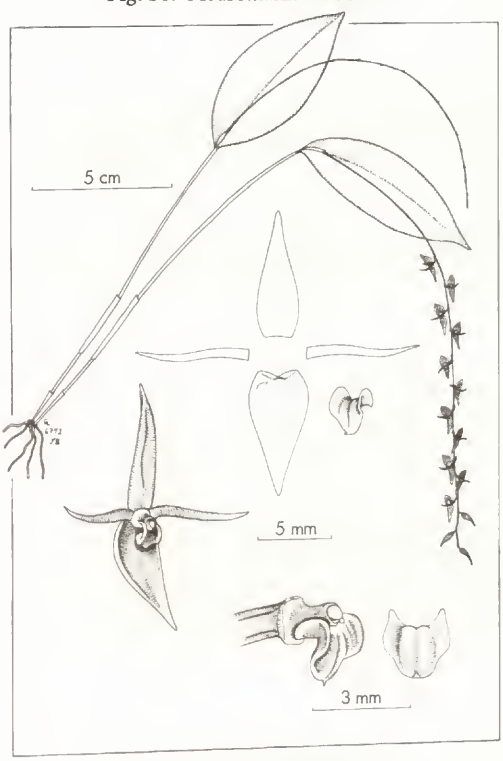


Fig. 32. Pleurothallis suspensa

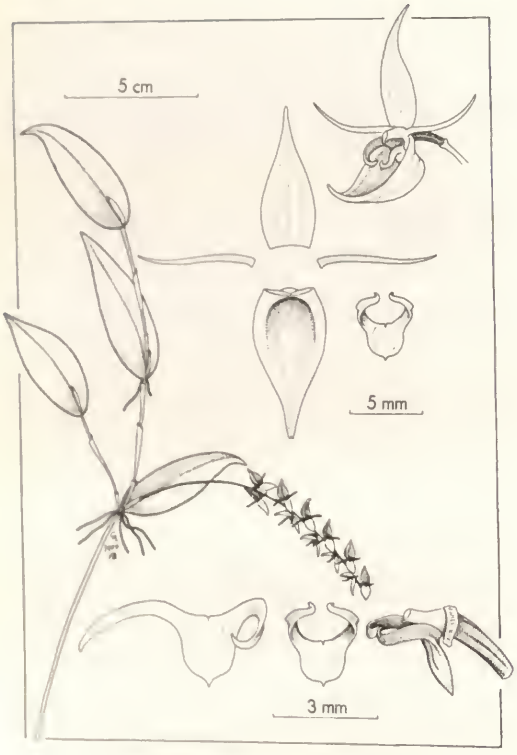


Fig. 33. Pleurothallis taurus

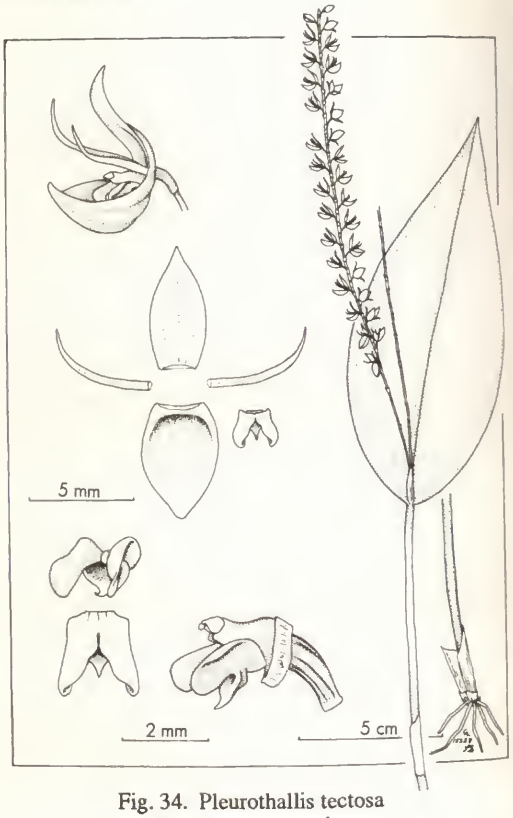


Fig. 34. Pleurothallis tectosa

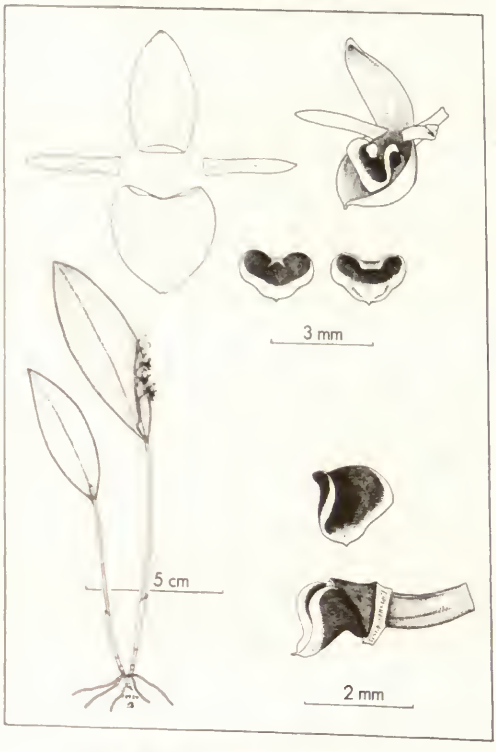


Fig. 35. Pleurothallis tenebrosa

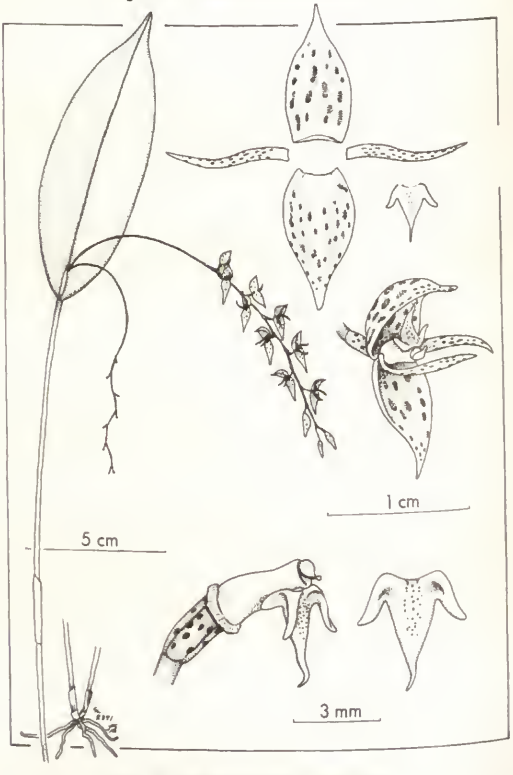


Fig. 36. Pleurothallis trifurcata

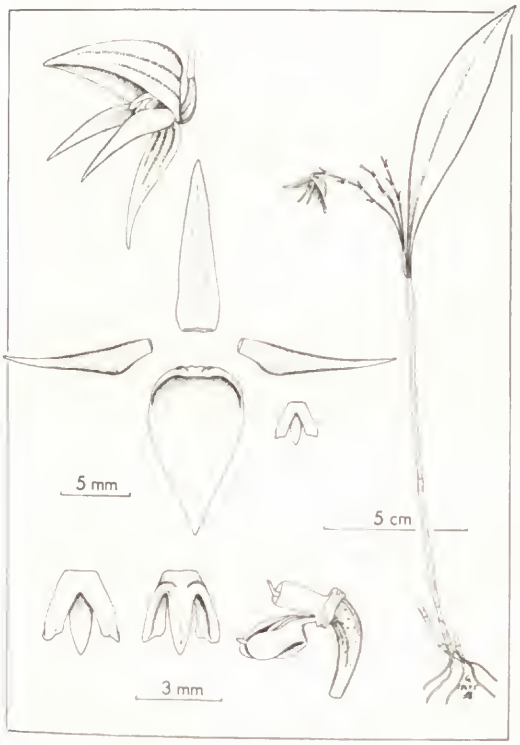


Fig. 37. Pleurothallis tuzae

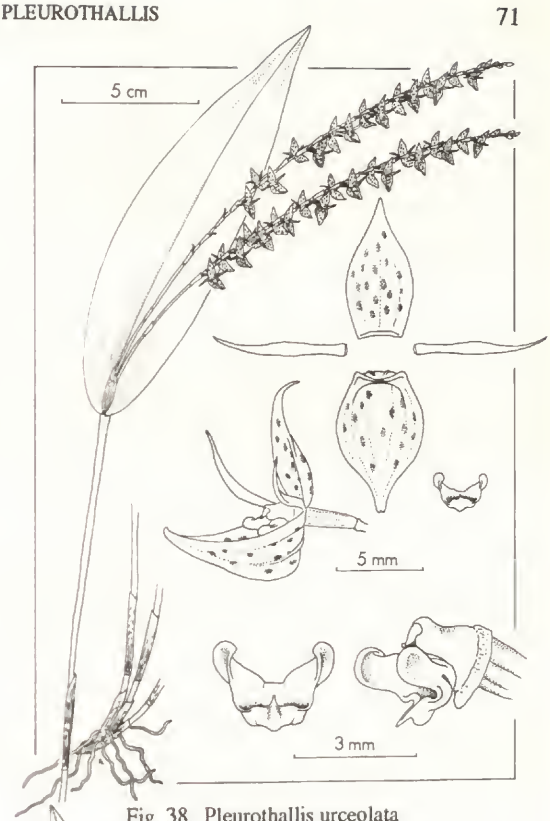


Fig. 38. Pleurothallis urceolata

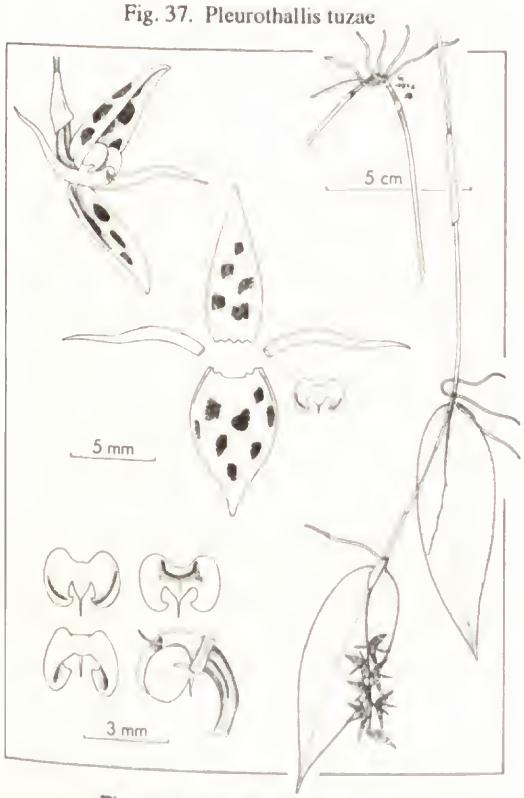


Fig. 39. Pleurothallis veliformis

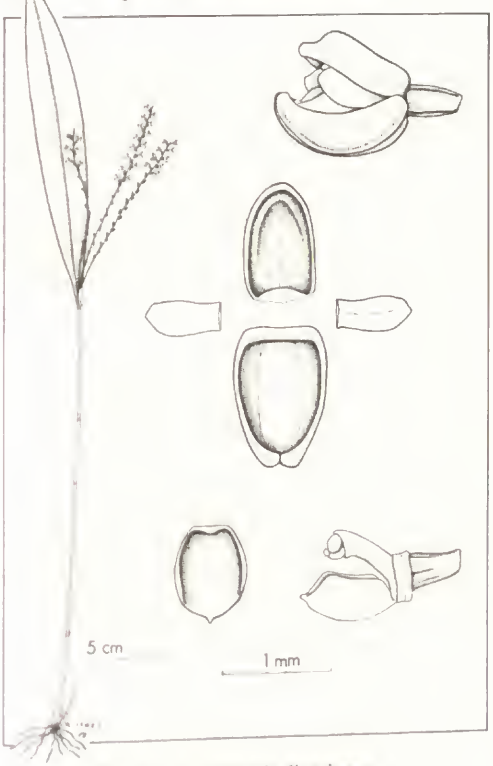


Fig. 40. Pleurothallis divaricans

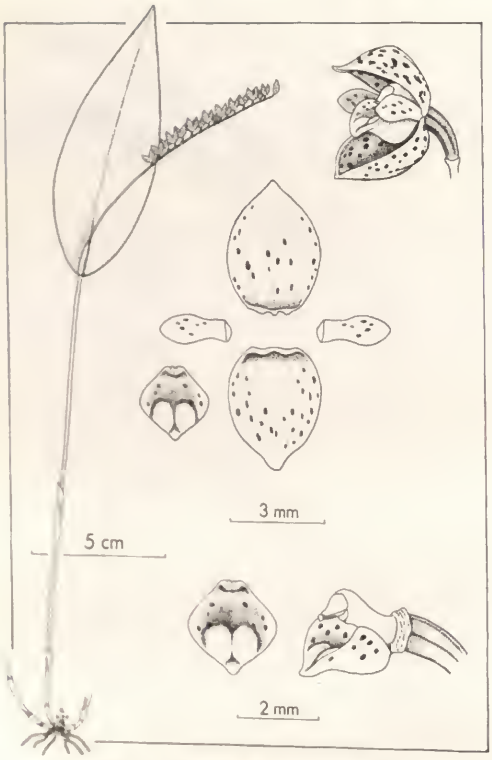


Fig. 41. Pleurothallis leopardina

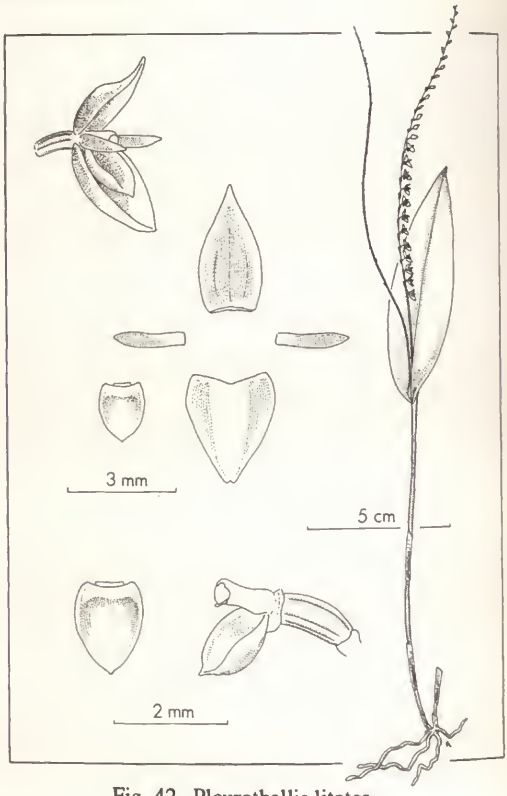


Fig. 42. Pleurothallis litotes

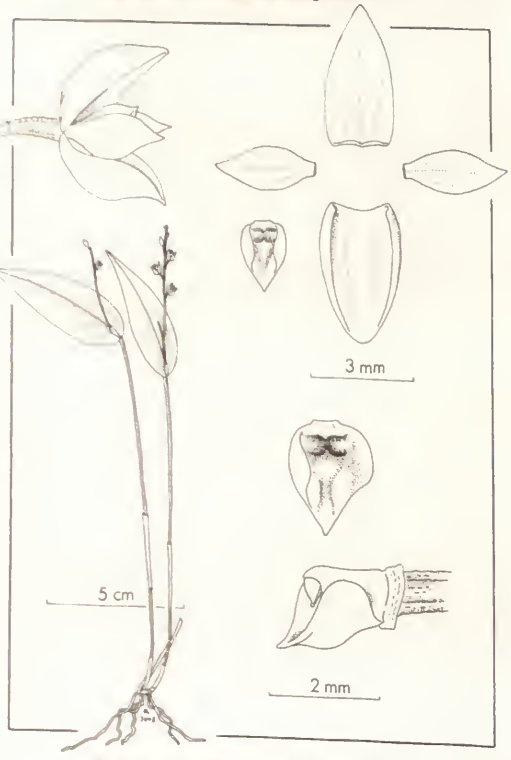


Fig. 43. Pleurothallis poculifera

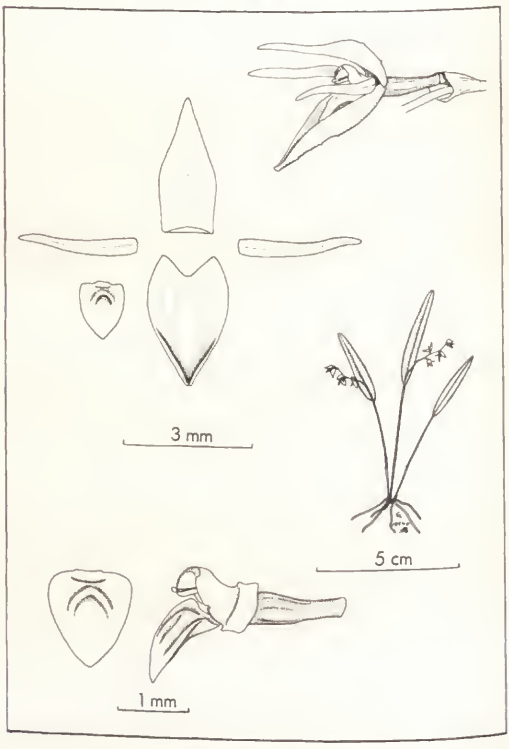


Fig. 44. Pleurothallis pruinosa

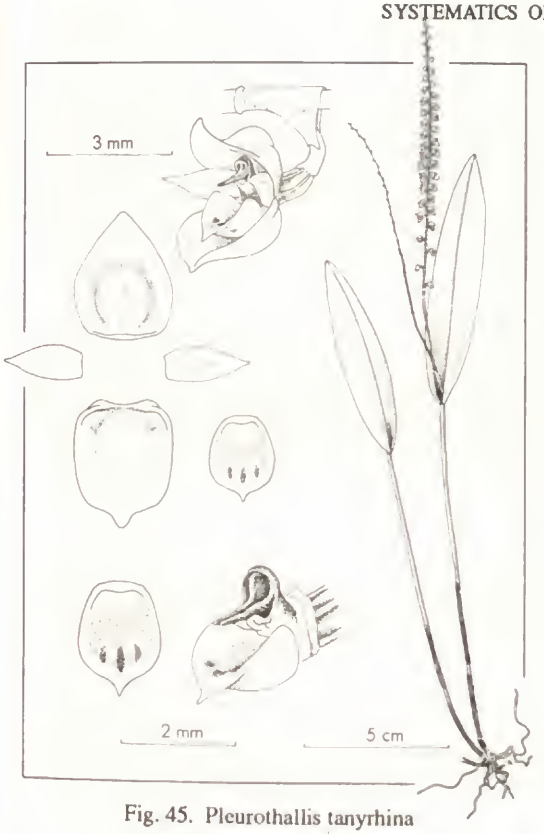


Fig. 45. Pleurothallis tanyrhina

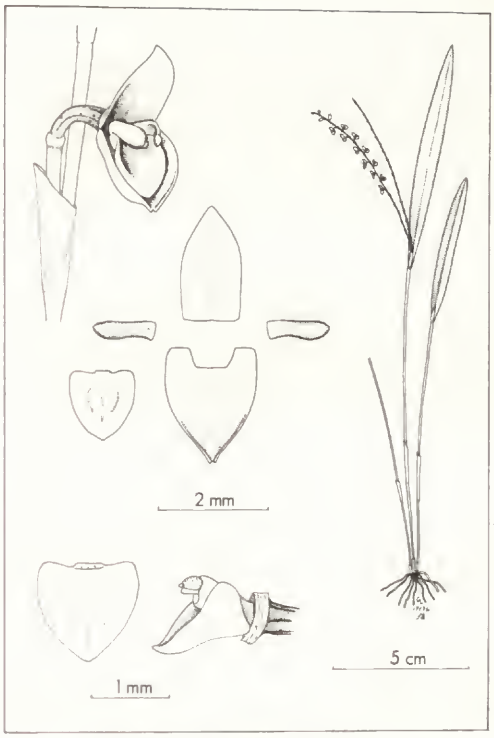


Fig. 46. Pleurothallis uninervia

Fig. 47. Pleurothallis xanthochlora

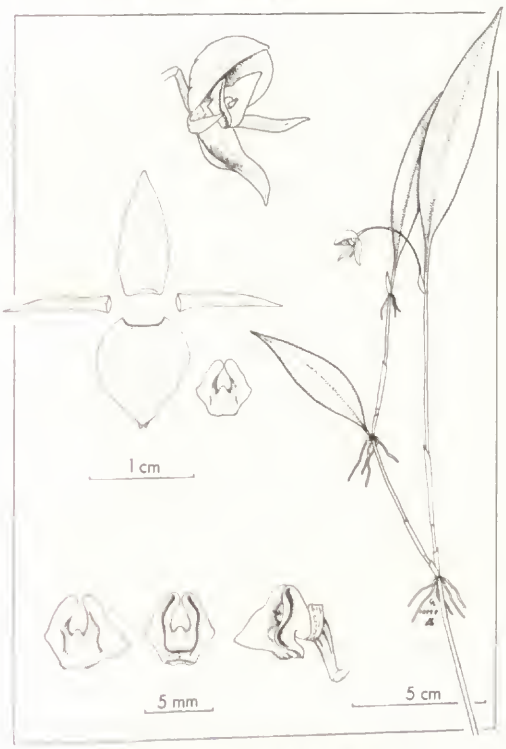


Fig. 48. Pleurothallis amplectens

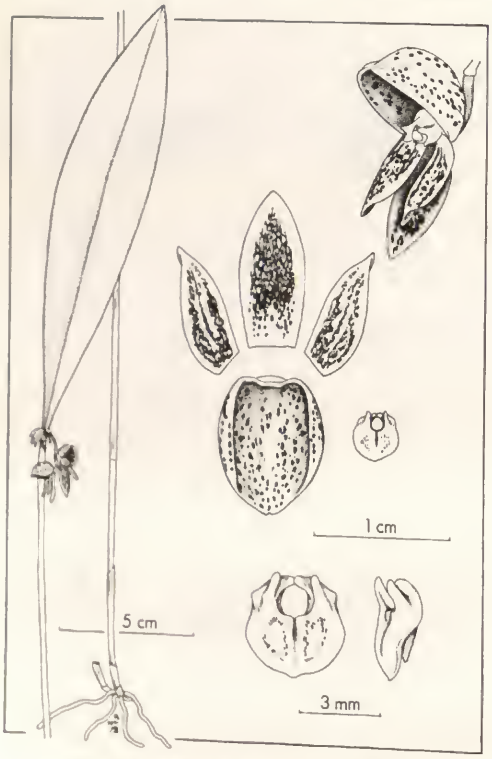


Fig. 49. Pleurothallis archidonae

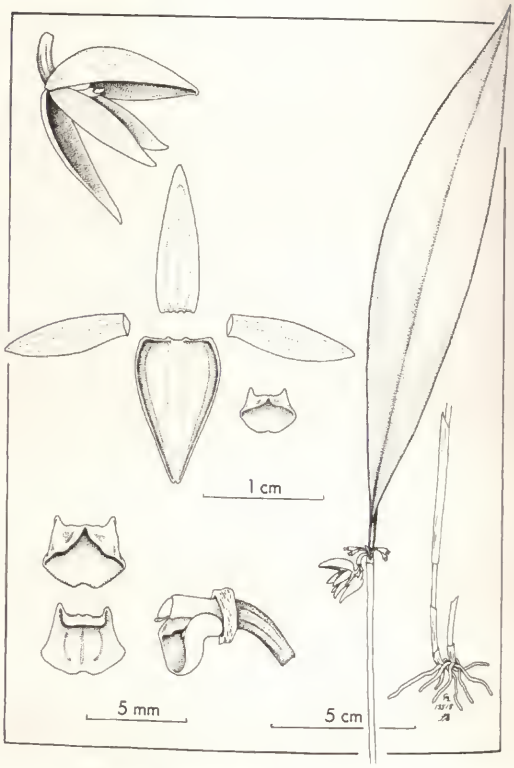


Fig. 50. Pleurothallis archidonopsis

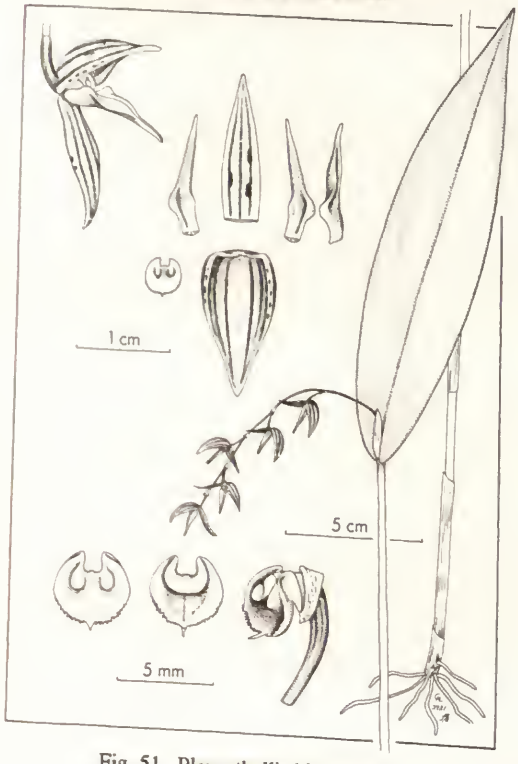


Fig. 51. Pleurothallis bicornis

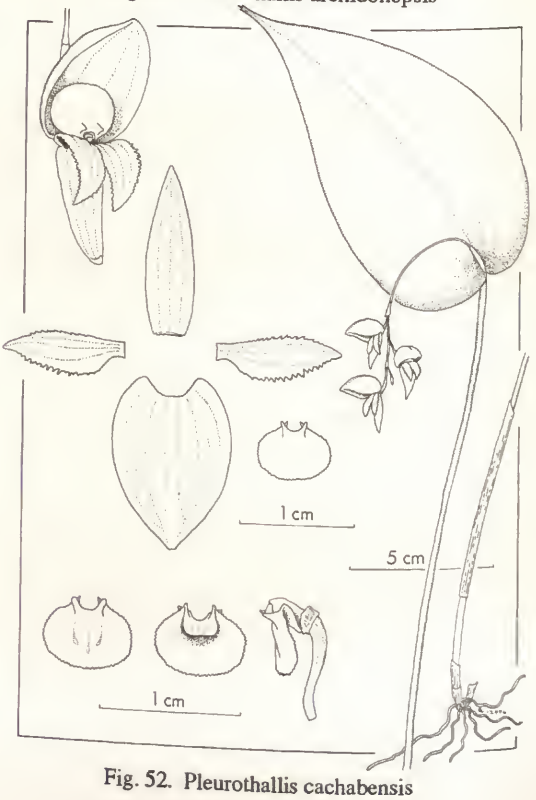


Fig. 52. Pleurothallis cachabensis

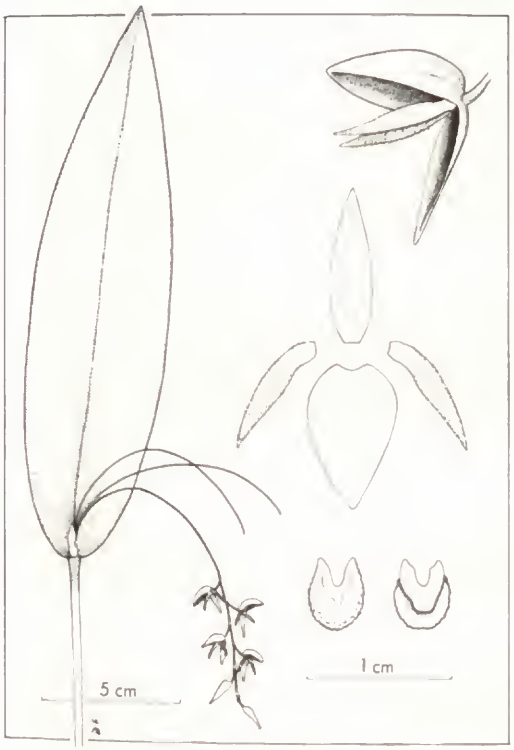


Fig. 53. Pleurothallis cajamarcae

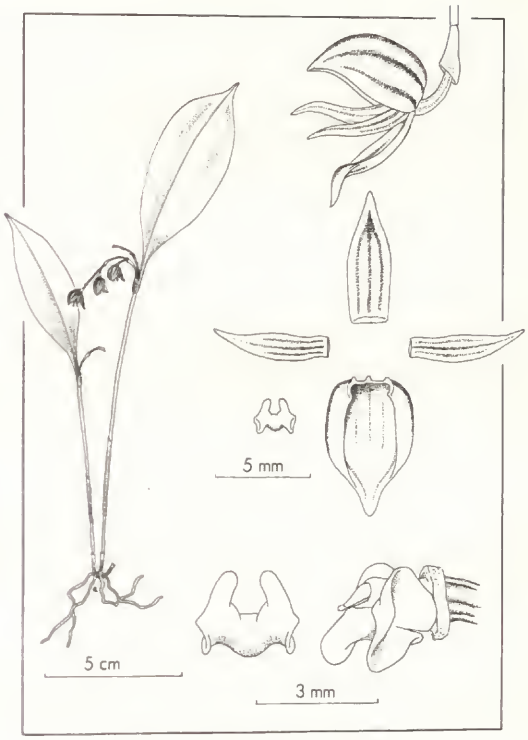


Fig. 54. Pleurothallis calvariola

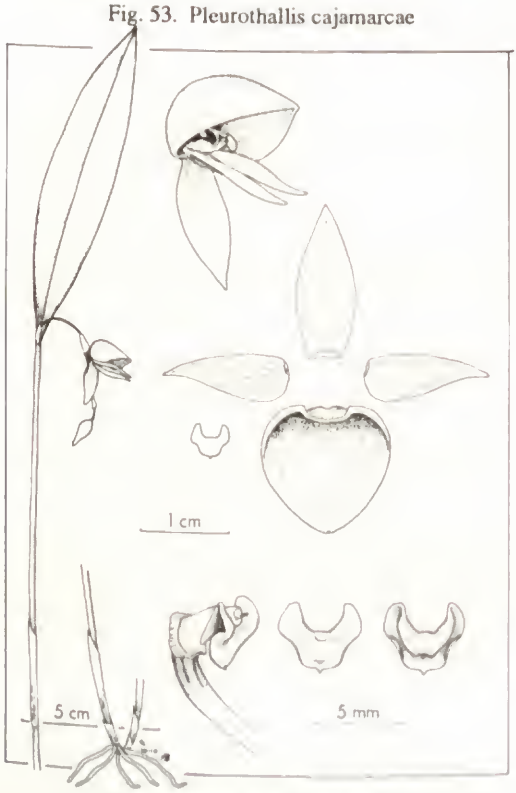


Fig. 55. Pleurothallis capitonis

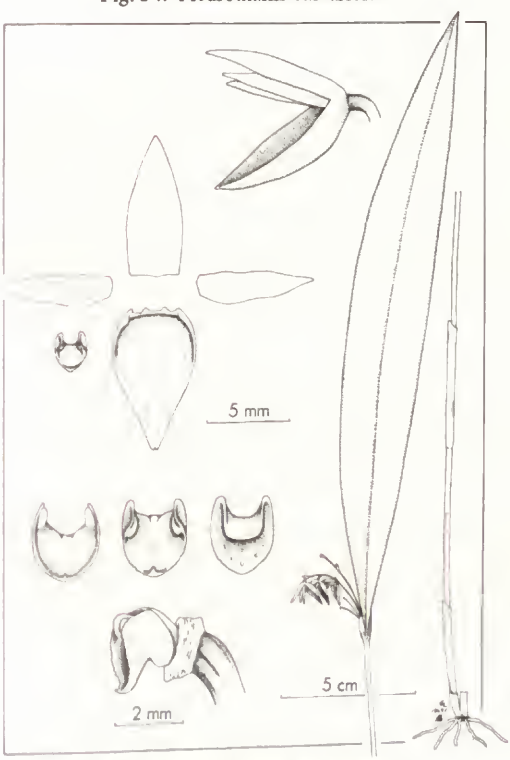


Fig. 56. Pleurothallis chuscalica

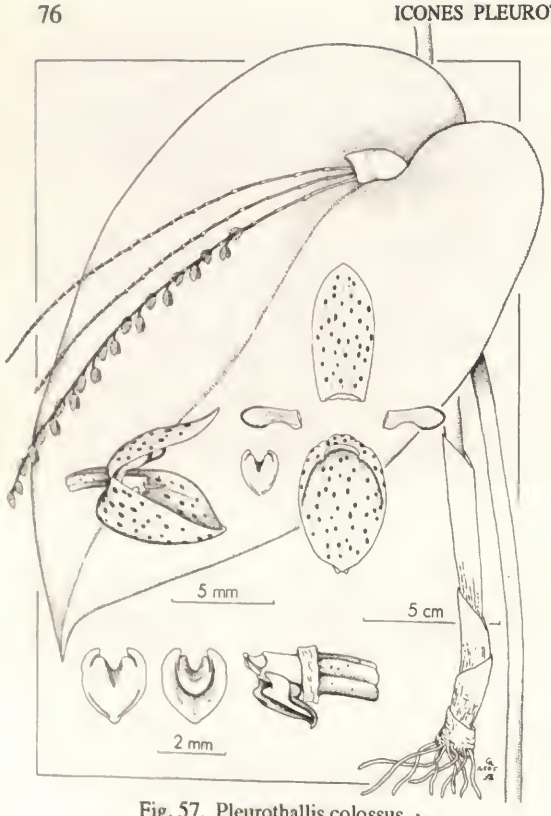


Fig. 57. Pleurothallis colossus

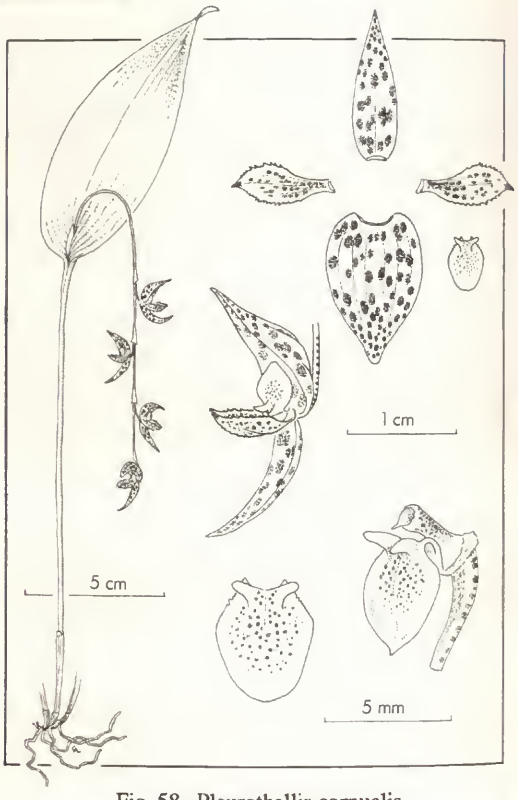


Fig. 58. Pleurothallis cornualis

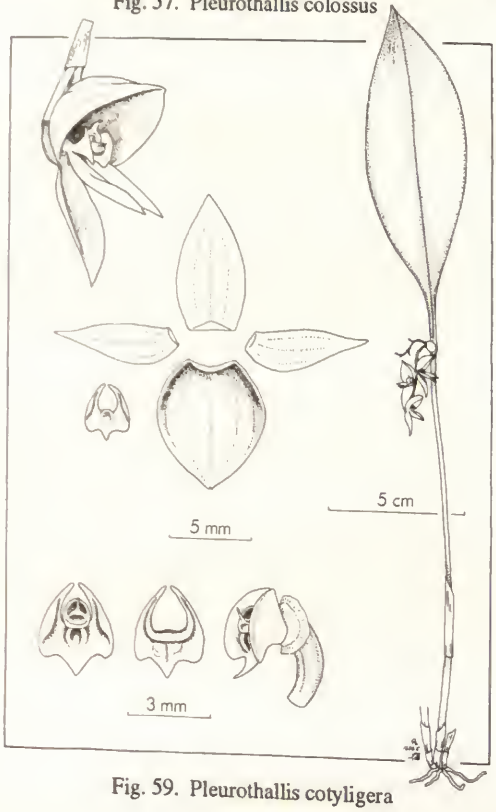


Fig. 59. Pleurothallis cotyligera

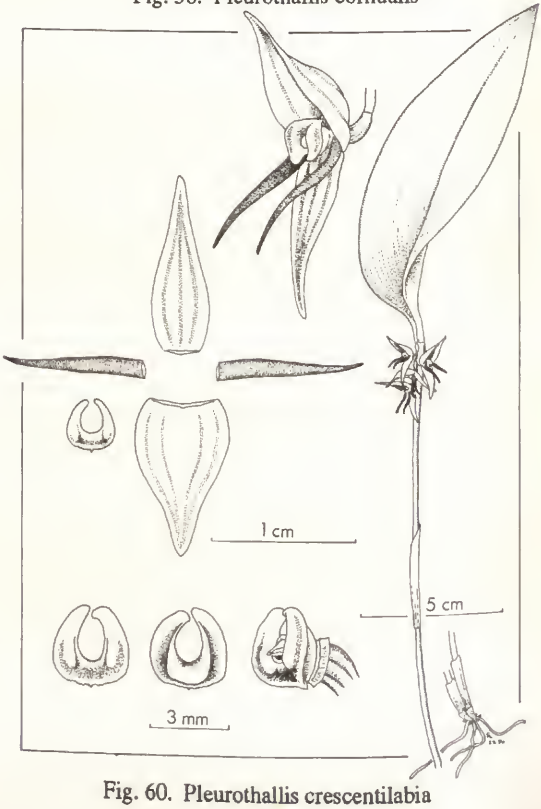


Fig. 60. Pleurothallis crescentilabia

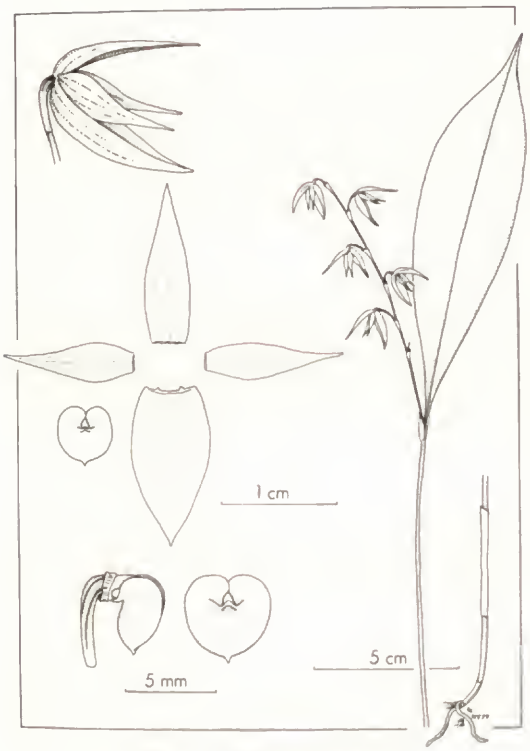


Fig. 61. Pleurothallis dorrii

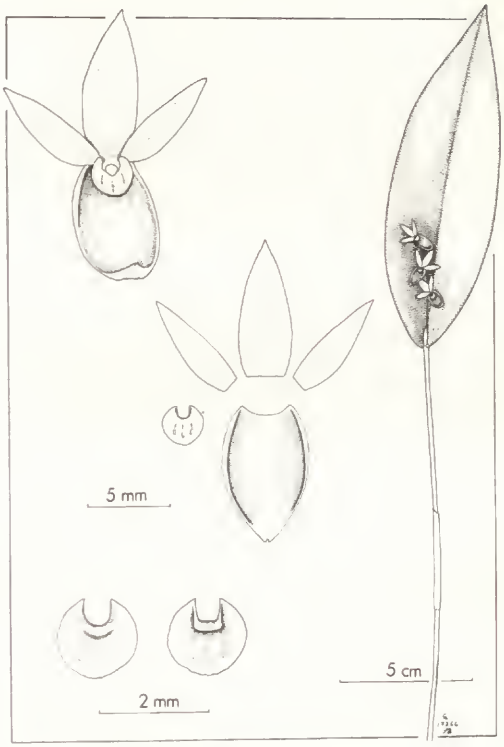


Fig. 62. Pleurothallis elvirana

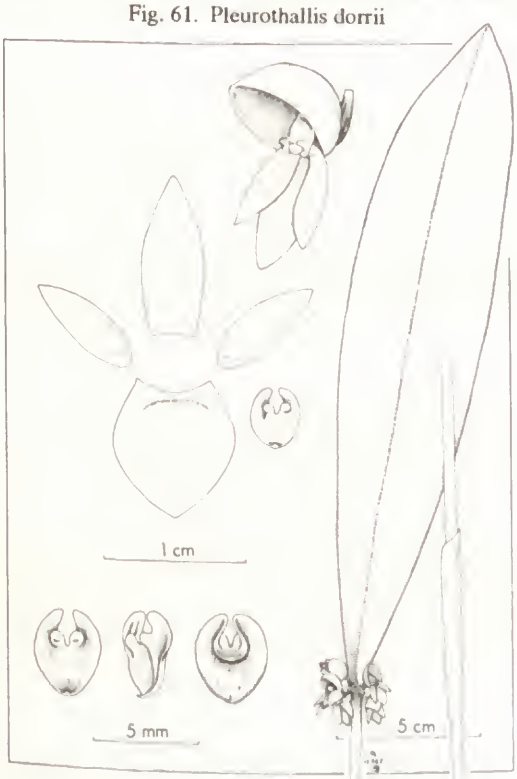


Fig. 63. Pleurothallis hartwegii

Fig. 64. Pleurothallis hemispherica

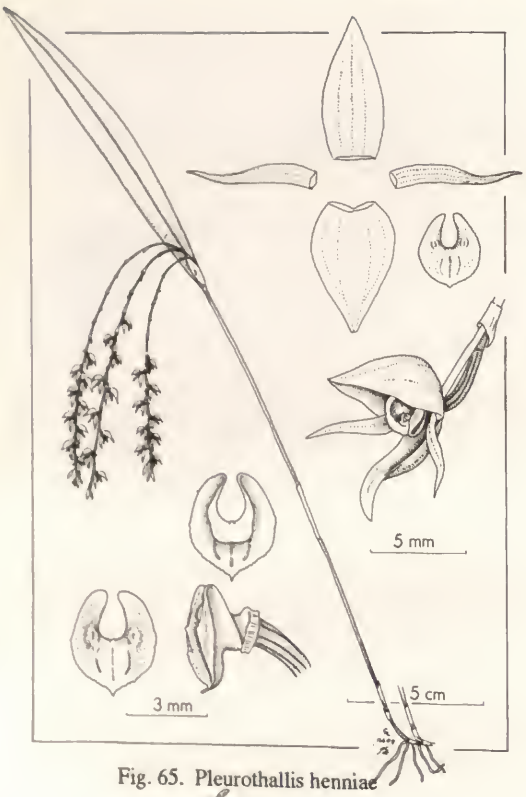


Fig. 65. Pleurothallis henniae

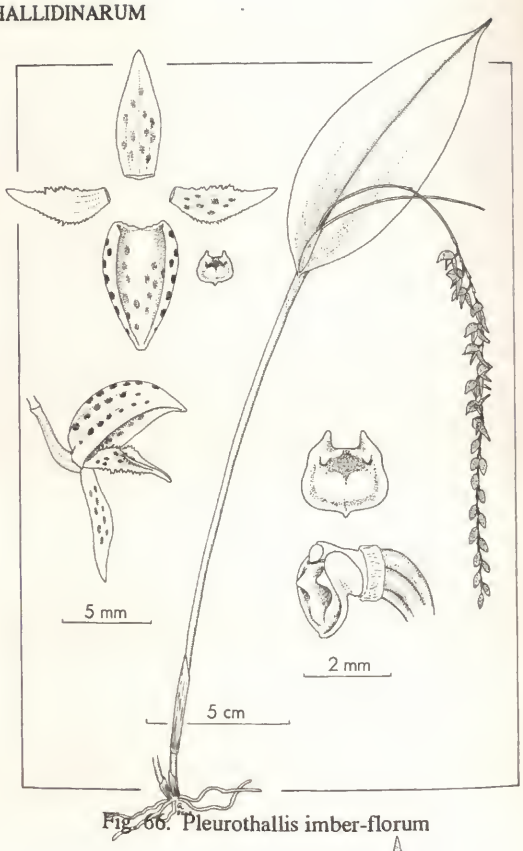


Fig. 66. Pleurothallis imber-florum

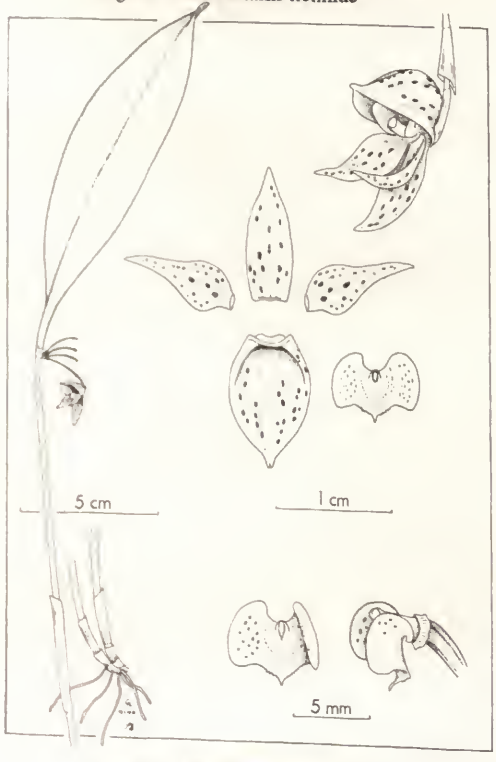


Fig. 67. Pleurothallis inflata

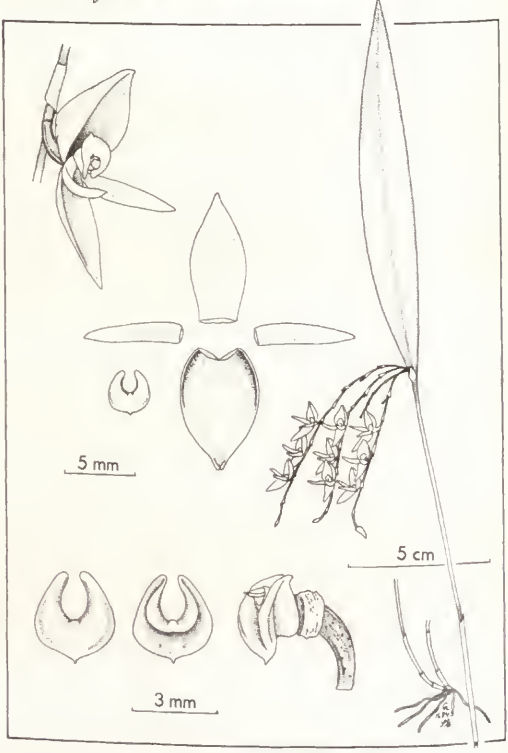


Fig. 68. Pleurothallis jaculifera

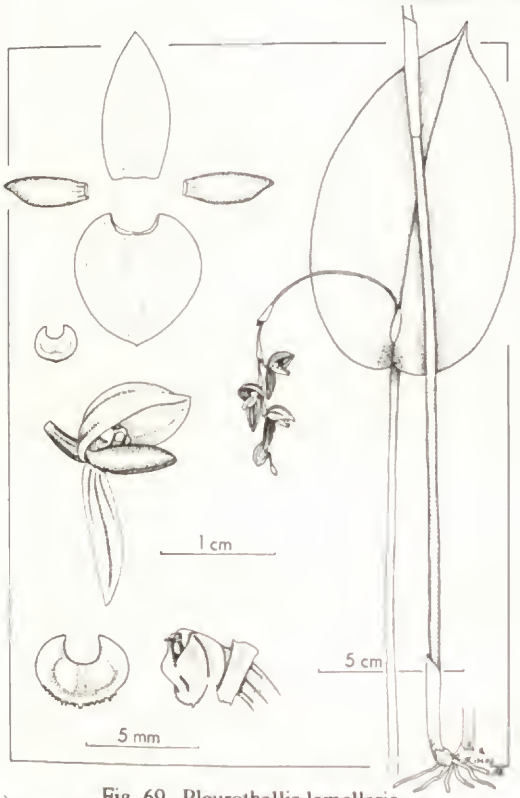


Fig. 69. Pleurothallis lamellaris

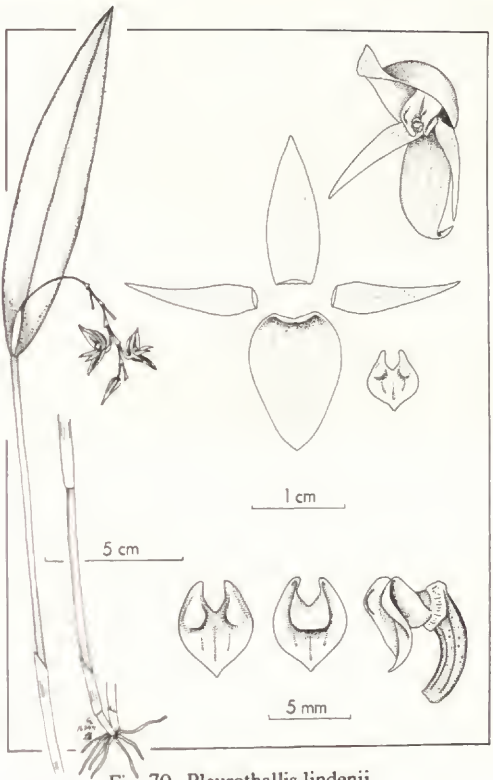


Fig. 70. Pleurothallis lindenii

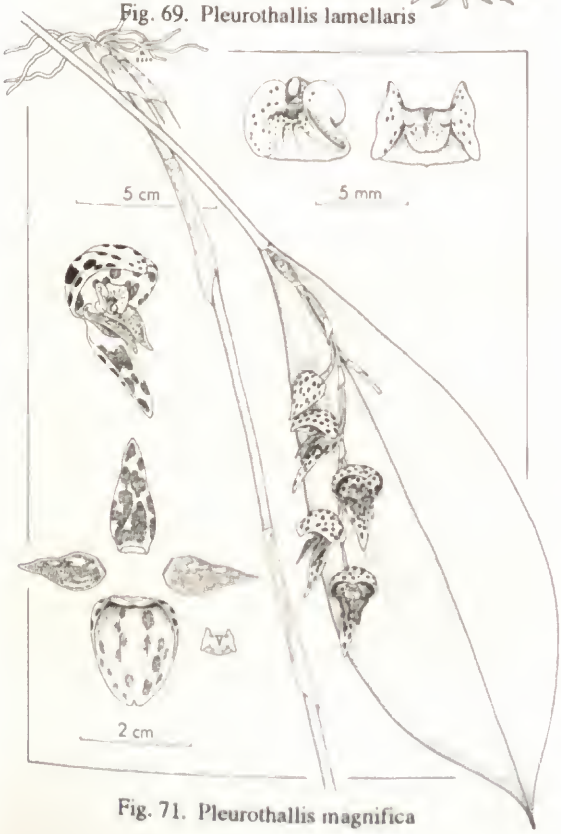


Fig. 71. Pleurothallis magnifica

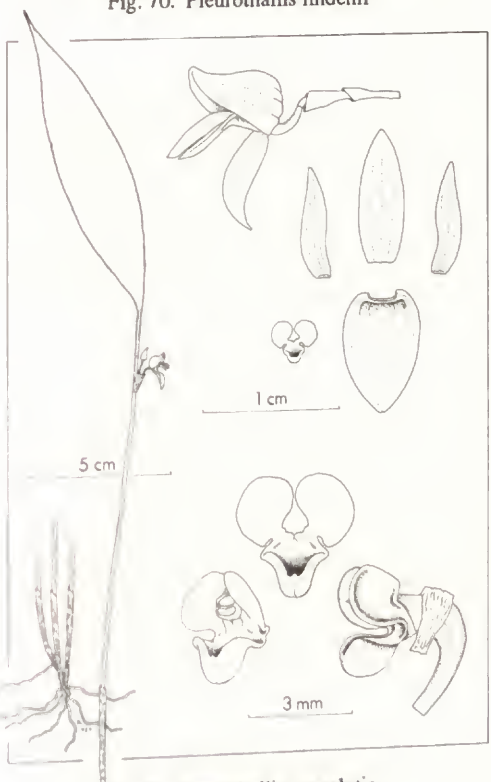


Fig. 72. Pleurothallis megalotis

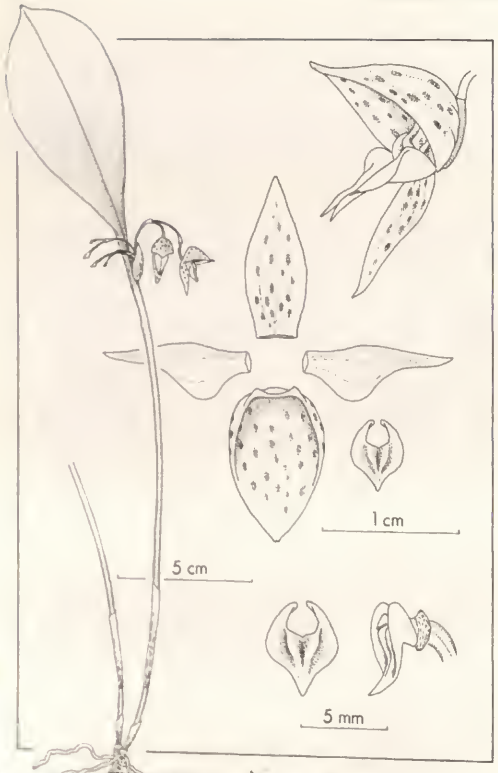


Fig. 73. Pleurothallis mundula

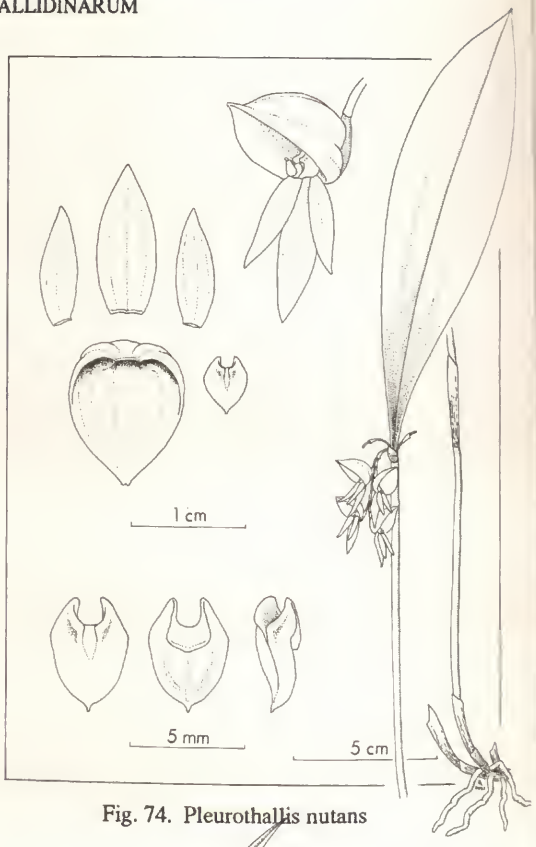


Fig. 74. Pleurothallis nutans

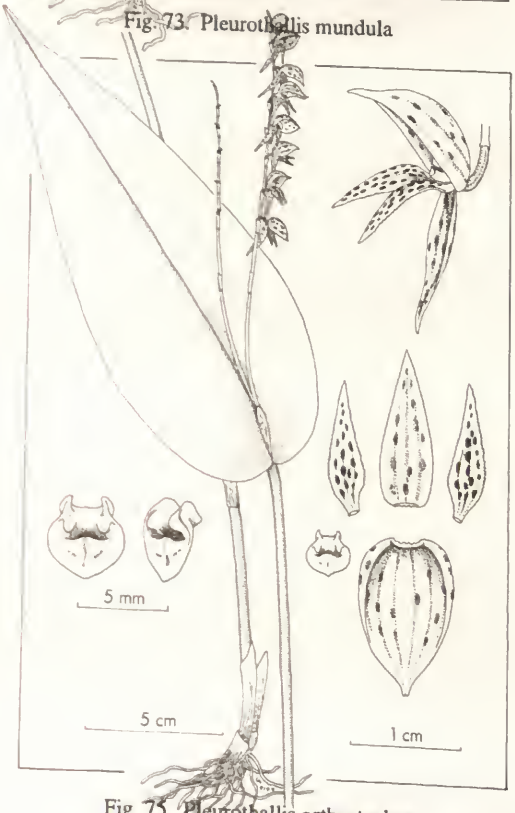


Fig. 75. Pleurothallis orthostachys

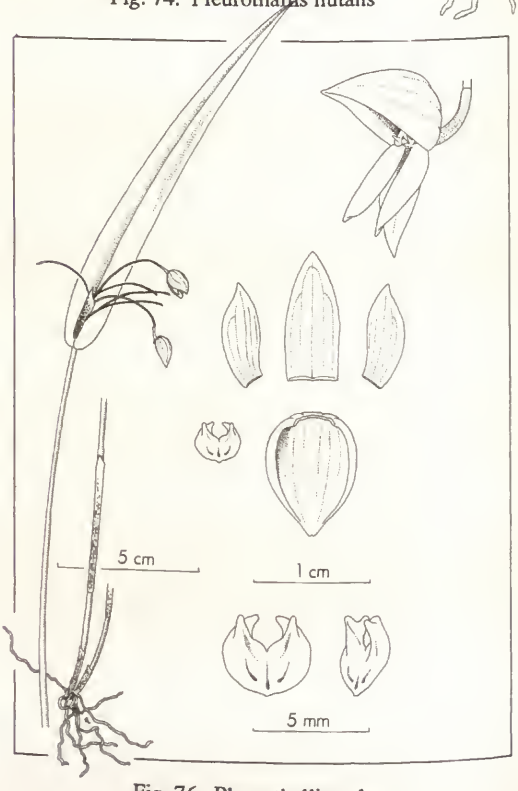


Fig. 76. Pleurothallis pelex

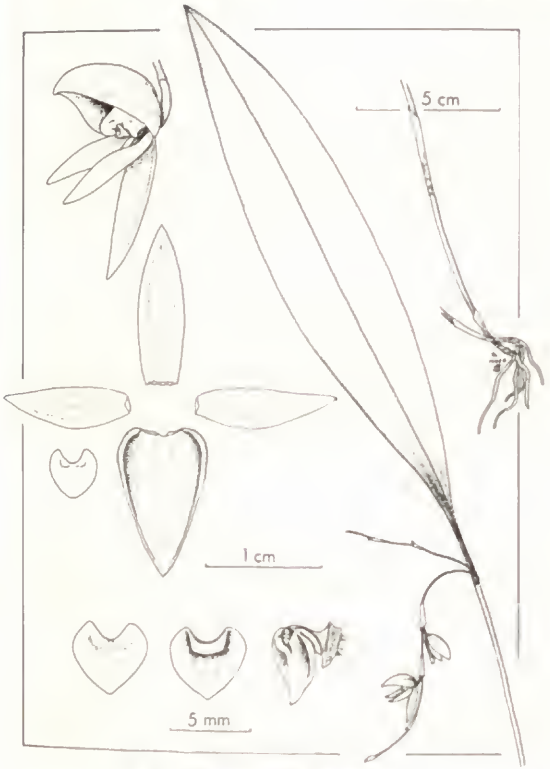


Fig. 77. Pleurothallis phratria

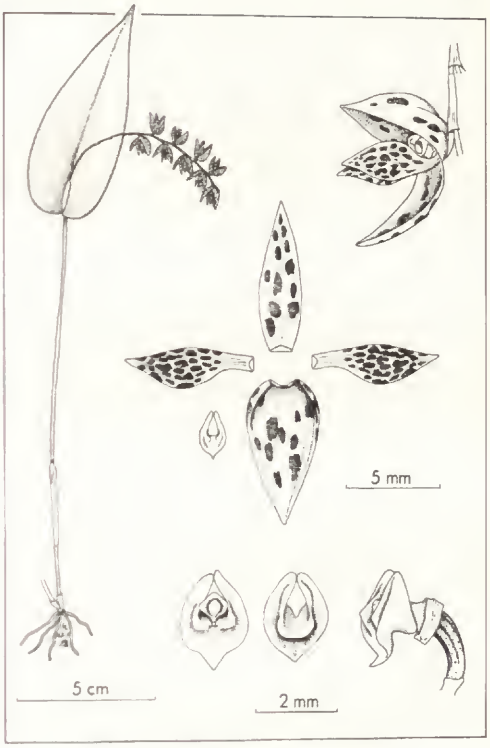


Fig. 78. Pleurothallis pulcherrima

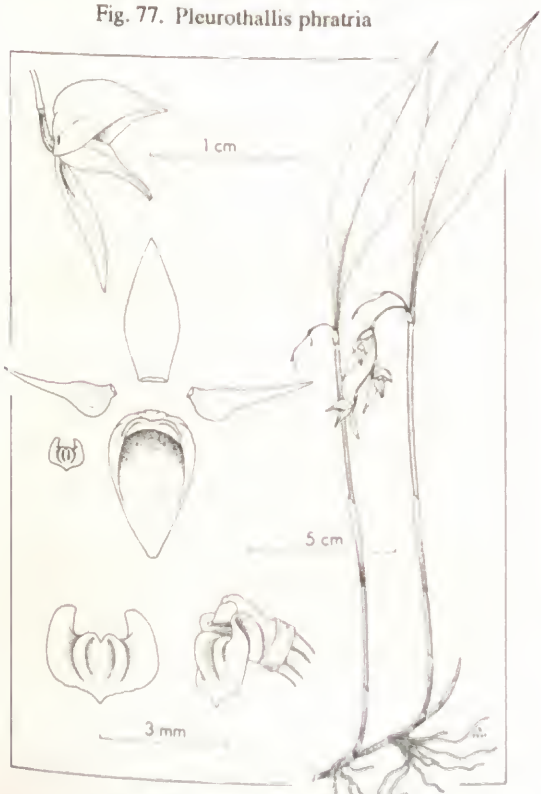


Fig. 79. Pleurothallis serpens

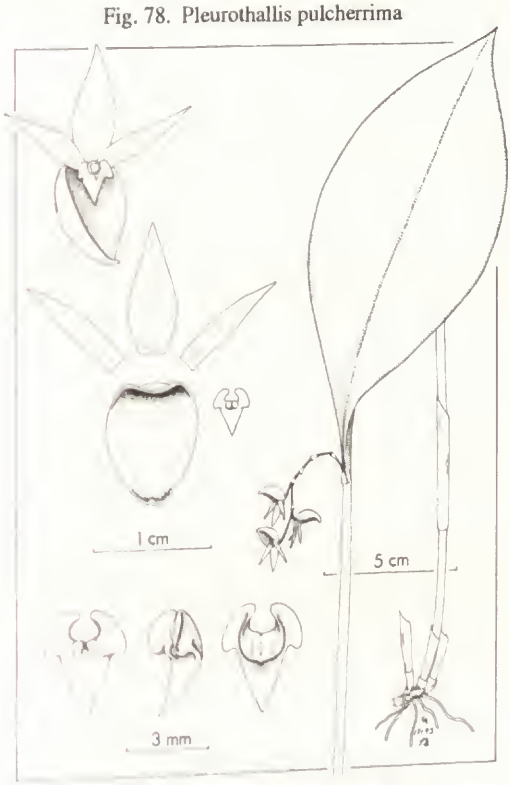


Fig. 80. Pleurothallis steyermarkii

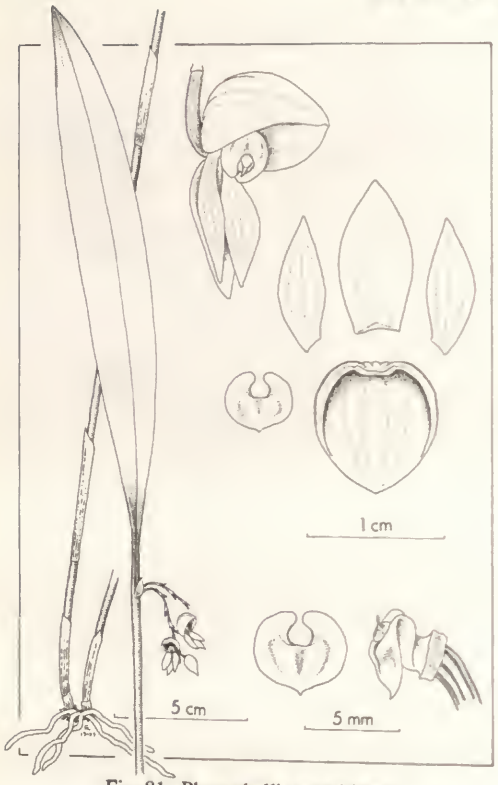


Fig. 81. Pleurothallis strobilifera

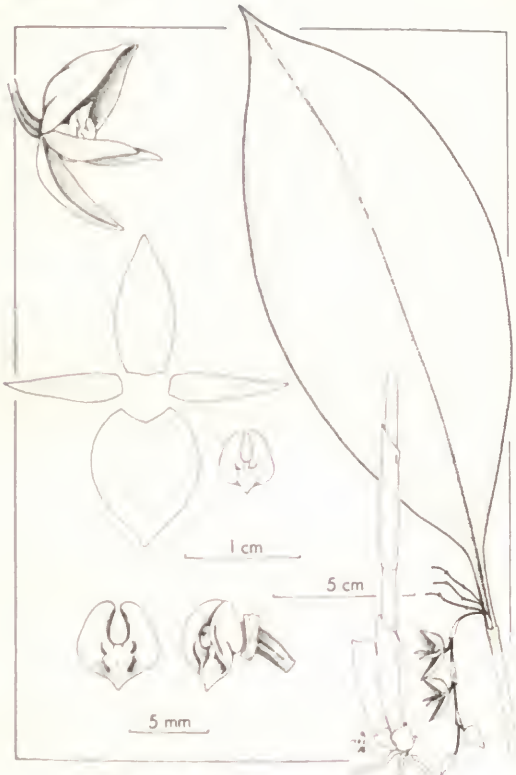


Fig. 82. Pleurothallis subreniformis

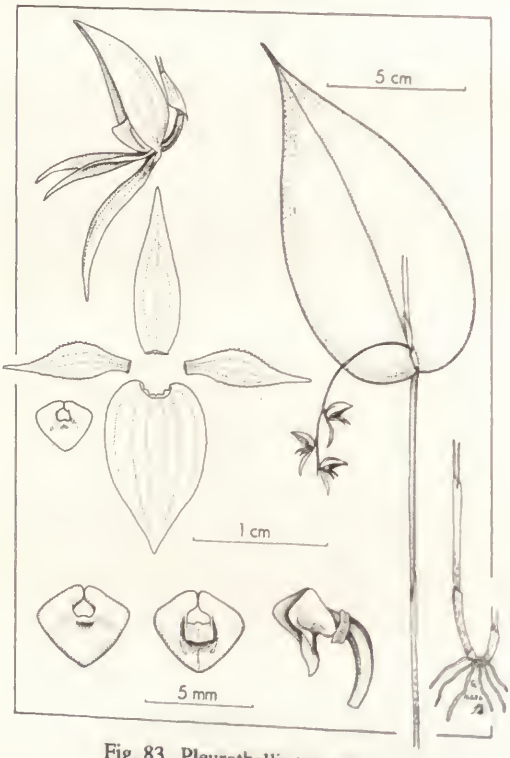


Fig. 83. Pleurothallis torrana

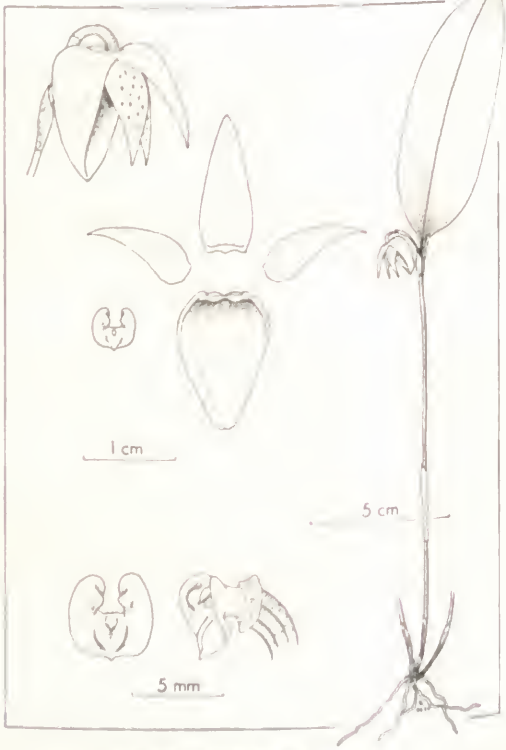


Fig. 84. Pleurothallis uvifera

SUBSECTION *PERPLEXAE*

Pleurothallis subsection **Perplexae** Luer, subsect. nov.

Type: *Pleurothallis questionis* Luer & Escobar.

Ety.: From the Latin *perplexus*, "perplexing," referring to the uncertain subsection of section *Pleurothallis* to which the species should be assigned.

Herba parva caespitosa, folio sessili patenti, inflorescentia racemosa pauciflora, petalis acinaciformibus, et labello parvo trilobato concavo basi calloso.

The description of the species will suffice for the unispecific subsection.

Pleurothallis questionis Luer & Escobar, Orquideología 20: 79, 1996.

Ety.: From the Latin *quaestionis*, "questionable," referring to the uncertain subsection of section

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, suberect to erect, 5-13 cm long, enclosed by a thin tubular sheath on the lower half, and 1 or 2 short sheaths about the base. **Leaf** spreading, more or less horizontal, coriaceous, narrowly ovate, acute, sessile, 3.5-7 cm long, 1.3-1.7 cm wide, the base sessile, subcordate or rounded. **Inflorescence** a loose, secund, few-flowered raceme 2-3 cm long of 4 simultaneous flowers, borne by a slender, peduncle 1 cm long, reclining in the sulcus of the leaf, subtended by a spathe 3-4 mm long; floral bracts thin, infundibular, 1.5 mm long; pedicel 0.5 mm long; ovary 1 mm long; **sepals** pale yellow, membranous, the dorsal sepal ovate, narrowly obtuse, 3.75-4.5 mm long, 2.5 mm wide, 3-veined, the lateral sepals white, connate into a concave lamina, 4-4.5 mm long, 2.75 mm wide unexpanded, 4-veined; **petals** pale yellow, thickened, especially at the base, subfalcate or obliquely ovate, acute, 3.75-4.25 mm long, 1.25-1.5 mm wide, 3-veined; **lip** pale yellow, trilobed, 1.25 mm long, 1 mm wide, the apical lobe ovate, shallowly concave, acute, minutely apiculate, the lateral lobes below the middle, erect, broadly obtuse or rounded, thickened on the margin, the disc concave above a broad, thick callus across the lower third, the base broadly subtruncate, hinged to the column-foot; column stout, 0.5 mm long, the anther proportionately large, exposed, subapical, the stigma transverse, apical, the foot thick, less than 0.5 mm long.

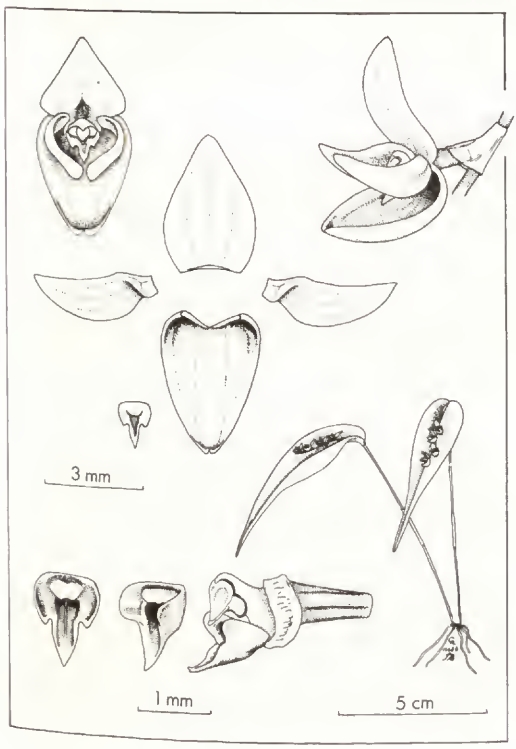


Fig. 85. Pleurothallis questionis

COLOMBIA: **Chocó**: San José del Palmar, Alto de Los Galápagos, alt. 2050 m, 13 May 1993, *C. Luer, J. Luer, R. Escobar, A. De Wilde & J. Gómez 16803* (Holotype: MO); same area, collected by E. Valencia, flowered in cultivation at Colomborquídeas, 12 Dec. 1992, *R. Escobar 5028* (MO), C. Luer illustr. 16626.

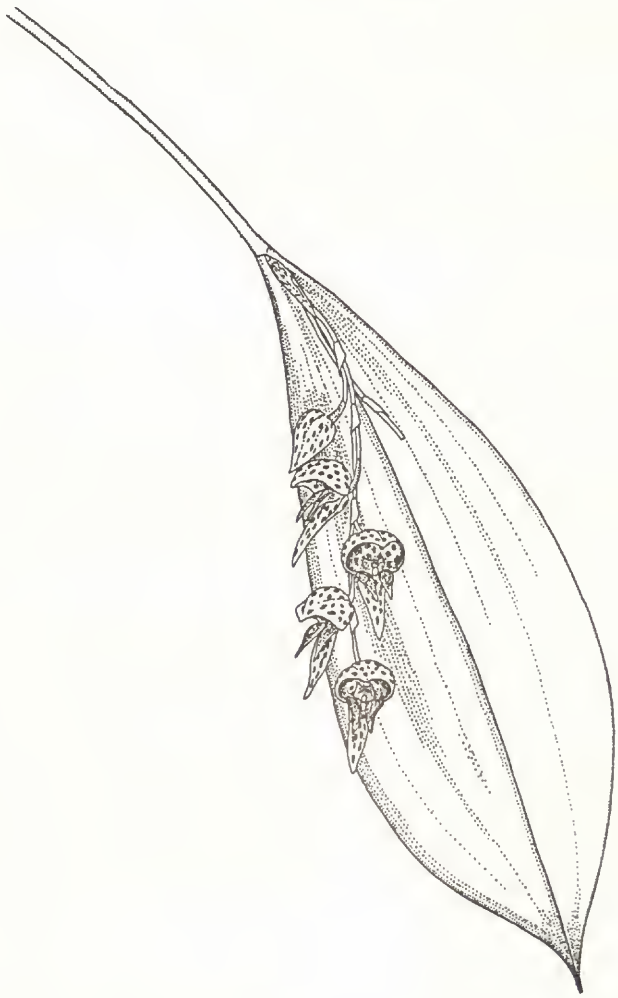
This little species, apparently endemic in the Western Cordillera of Colombia, is without close relatives. A member of section *Pleurothallis* by virtue of the short column with an exposed, apical anther, a transverse, apical stigma, and connate lateral sepals, this species is not accommodated in any of the recognized subsections. The small to medium-sized habit with ovate, subcordate, horizontal, sessile leaves suggests *Acroniae*. The morphology of the sepals is found in all subsections.

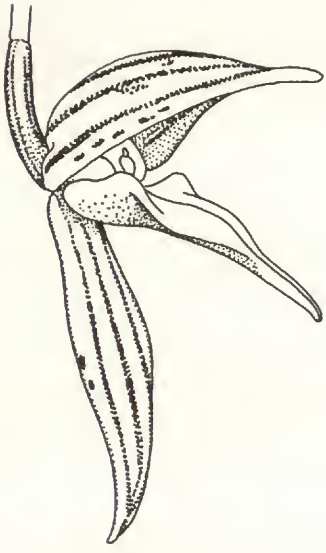
Differing from the known subsections, the petals are entire and subfalcate, or shaped like a scimitar, thickened at the base, and with acute apices. Also, the deeply trilobed lip with a large, thick, erect callus across the lower third of the disc is foreign to all known subsections.

INDEX OF SCIENTIFIC NAMES
of subsections *Antenniferae*, *Longiracemosae*, *Macrophyllae-Racemosae* and *Perplexae*

Humboldtia antennifera 7
archidonae 41
bicornis 42
bicruris 10
cyclochila 7
diffusa 21
geniculata 49
hartwegii 49
incurva 7
lamellaris 52
lindenii 53
pruinosa 33
revoluta 2, 21
saltatoria 22
secunda 23
semipellucida 21
xanthochlora 36
Masdevallia racemosa 54
Platystele 35
Pleurothallis 1,
subgenus Crocodeilanthe 16
subgenus Pleurothallis 1,
section Abortivae 1,
section Macrophyllae-Racemosae 37
section Pleurothallis 40, 83
section Truncatae 1,
subsection Acroniae 1,
subsection Antenniferae 1, 2, 29
subsection Longiracemosae 1, 29, 30
subsection Macrophyllae-Fasciculatae 1,
subsection Macrophyllae-Racemosae 1, 37, 38, 39, 58
subsection Pleurothallis 1, 26, 42
subsection Perplexae 1, 83
series Inflatae 37
series Longiracemosae 29
series Macrophyllae-Racemosae 37
Pleurothallis alveolata 2, 5, **7**, Fig. 1.
amplectens 38, 40, **41**, Fig. 48.
andrei 38, 53
antennifera 1, 2, 3, 6, **7**, 8, 9, 11, 37, Fig. 2.
aporosis 2, 5, **9**, Fig. 3.
araguensis 38, 53
archidonae 37, 38, 40, **41**, 47, 50, 55, 57, Fig. 49.
archidonopsis 1, 38, 40, **42**, Fig. 50.
atrorubra 30, 31
aves-seriales 2, 18
bicochlearis 2, 6, **9**, Fig. 4.
bicornis 24, 37, 38, 39, **42**, 43, 44, 45, 50, 54, Fig. 51.
bicruris 2, 3, 5, **10**, Fig. 5.
brachiata 2, 5, **10**, Fig. 6.
cachabensis 38, 39, **43**, 44, Fig. 52.
cajamarcae 38, 39, **44**, Fig. 53.
calvariola 38, 40, **44**, 45, Fig. 54.
capitonis 38, 39, **45**, Fig. 55.
chuscalica 38, 39, **45**, Fig. 56.
colossus 38, 39, **46**, Fig. 57.
Pleurothallis complicata 2, 21
cornualis 38, 39, 44, **47**, Fig. 58.
cotyligera 38, 40, **47**, Fig. 59.
crescentilabia 38, 40, **48**, Fig. 60.
cyclochila 2, 7, 8
cymbisepala 2, 5, **11**, Fig. 7.
decora 38, 56
demissa 2, 5, **11**, 24, Fig. 8.
diffusa 2, 21
var. grandiflora 3, 18
diploglossa 3, 10
divaricans 30, **31**, 32, 35, Fig. 40.
dolicocaulon 30, 36
dorrii 38, 40, **48**, Fig. 61.
eccentrica 3, 6, **12**, 41, Fig. 9.
eidos 3, 4, **12**, Fig. 10.
elvirana 38, **49**, Fig. 62.
excelsa 46
flavida 30, 33
gargantua 46
geniculata 37, 38, 49
genychila 3, 6, **13**, Fig. 11.
hartwegii 37, 38, 40, **49**, Fig. 63.
hemispherica 38, 39, **50**, Fig. 64.
henniae 38, 40, **50**, Fig. 65.
huanucoënsis 30, 36
hippocrepica 3, 5, **13**, 25, Fig. 12.
hirtzii 38, 46
hjertingii 3, 4, **14**, Fig. 13.
imbaburae 3, 5, **14**, Fig. 14.
imber-florum 38, 39, **51**, Fig. 66.
incurva 3, 7
inflata 38, 39, **51**, 61, Fig. 67.
jaculifera 38, 40, **52**, Fig. 68.
lamellaris 38, 39, **52**, Fig. 69.
lenae 3, 4, **15**, Fig. 15.
leopardina 30, **31**, 32, Fig. 41.
lindenii 24, 37, 38, 40, 43, 46, **53**, 54, 57, 59, Fig. 70.
var. gigantea 38, 60
var. longiracema 3, 14
var. pumila 38, 51
litotes 29, 30, **32**, Fig. 42.
loejtnantii 3, 5, **15**, Fig. 16.
longipedicellata 26
loxensis 38, 52
madsenii 1, 3, 4, **16**, Fig. 17.
magnifica 38, 40, **54**, Fig. 71.
manicosa 3, 4, **16**, Fig. 18.
megalotis 38, 40, **55**, Fig. 72.
melanosticta 3, 4, **17**, Fig. 19.
mundula 38, 40, **55**, Fig. 73.
nasitema 3, 6, **17**, Fig. 20.
nutans 38, 40, **56**, Fig. 74.
orthostachys 38, 39, **56**, Fig. 75.
parviflora 3, 6, **18**, Fig. 21.
pauciflora 30, 33
pelex 38, 39, 55, **57**, Fig. 76.
pendula 38, 53

Pleurothallis penduliflora 2, 3, 4, 13, 14, 15, **18**, 22, 24, Figs. 22, 23.
phratria 38, 40, **57**, Fig. 77.
poculifera 30, **33**, Fig. 43.
praegrandis 38, 46, 47
pruinosa 29, 30, **33**, Fig. 44.
ptychophora 3, 6, **19**, Fig. 24.
pulcherrima 1, 38, 39, **58**, Fig. 78.
pulvinaris 3, 4, **19**, Fig. 25.
questionis **83**, Fig. 85.
ramificans 3, 4, **16**, **20**, 25, Fig. 26.
revoluta 2, 3, 5, 19, **21**, Figs. 27.
roseola 3, 4, **22**, Fig. 28.
saccata 38, 46, 47
saltatoria 3, 4, **22**, 25, 26, Fig. 29.
sanluisii 26
scintillata 3, 5, **23**, Fig. 30.
secunda 2, 3, 5, 14, **24**, 43, 54, Fig. 31.
var. longiracema 3, 14
semipellucida 2, 3, 21
var. grandiflora 3, 18
Pleurothallis serpens 38, 40, **58**, Fig. 79.
silvestris 38, 44
stalkyi 26
steyermarkii 38, 40, **59**, Fig. 80.
strobilifera 38, 40, 48, 52, **59**, Fig. 81.
subreniformis 38, 40, **60**, Fig. 82.
suspensa 3, 5, **24**, Fig. 32.
tanyrhina 30, **35**, Fig. 45.
taurus 3, 4, 5, **24**, Fig. 33.
tectosa 3, 6, **25**, 27, Fig. 34.
tenebrosa 1, 3, 5, **25**, 26, Fig. 35.
torrana 38, 39, **60**, Fig. 83.
trifurcata 3, 5, **26**, Fig. 36.
tuzae 3, 4, **27**, Fig. 37.
uninervia 1, 30, **35**, Fig. 46.
urceolata 3, 6, **27**, Fig. 38.
uvifera 38, 40, **61**, Fig. 84.
veliformis 3, 4, **28**, Fig. 39.
xanthochlora 29, 30, **36**, Fig. 47.
Stelis
colossus 46
flavida 33





SYSTEMATICS OF *PLEUROTHALLIS* SUBGENUS *PSEUDOSTELIS*

ABSTRACT

This subgenus includes species closely related to *Pleurothallis* R.Br. subgenus *Pleurothallis*, but it is distinguished from that subgenus by free lateral sepals. The subgenus is described, and a key to the species is given. Each species is described and illustrated with a black and white drawing.

New Taxon:
Pleurothallis subgen. *Pseudostelis* (Schltr.) Luer, stat. nov.

This subgenus contains the few species that are similar to the species of subgenus *Pleurothallis* with a *Pleurothallis*-like column, but it is distinguished from the latter by free lateral sepals. The first of these species to be described was published by Lindley in 1835 as *Physosiphon spiralis*. It should not to be confused with his transfer in 1830 of the *Humboldtia spiralis* of Ruiz & Pavón to *Pleurothallis*.

Barbosa Rodrigues described the species next as *Stelis deregularis* in 1882, and Cogniaux transferred it to *Physosiphon* beside Lindley's *Physosiphon spiralis* in 1896. In 1922, Schlechter proposed the genus *Pseudostelis* for the preceding two names and a new one. *Stelis deregularis* acquired several more names in its wide distribution through the Andes and Centrla America. In 1978, it was transferred to *Pleurothallis*.

This species and its relatives superficially resemble the genus *Stelis* with their racemes of small flowers; free, similar sepals; small petals; a small, relatively simple lip; and a nearly footless column.

SUBGENUS *PSEUDOSTELIS*

Pleurothallis subgen. **Pseudostelis** (Schltr.) Luer, stat. nov.
Bas.: *Pseudostelis* Schltr., Anexos Mem. Inst. Butantan, Secc. Bot. 1(4): 38, 1922.
Type: *Pseudostelis bradei* Schltr.
Ety.: From the Greek *Pseudo-*, "false," and the genus *Stelis*, in allusion to the *Stelis*-like flowers.

Plants perennial, small to large in size, normally epiphytic to terrestrial, caespitose to shortly repent; roots slender. Ramicauls erect to suberect, terete, elongate, non-pseudobulbous, unifoliate, with a closely fitting, tubular sheath below the middle and 2-3 other sheaths at the base. **Leaf** erect, suberect, coriaceous, smooth, narrowly obovate to narrowly to broadly elliptical, the apex acute to obtuse, shallowly notched with a mucro in the sinus, the base sessile, to narrowly cuneate to subpetiolate. **Inflorescence** racemose, the flowers usually resupinate, variously colored, borne by a peduncle that emerges from the apex of the ramicaul at the base of the leaf, or laterally a short distance below the abscission layer; floral bracts thin, infundibular or tubular, acute; pedicels usually exceeding the floral bract; ovary smooth, trivalvate; **sepals** glabrous, fleshy, acute, subacute or obtuse, free from each other except for the base; **petals** oblong, obtuse, entire; **lip** entire, oblong to ovate, rounded to obtuse at the apex, the base, truncate, shallowly concave on the end, flexibly or inflexibly attached to the thickened base of the column or column-foot; **column** terete, non-winged, the anther apical and the stigma apical or subapical, pollinia 2, obovoid, with a microscopic viscidium, the base of the column thickened with the apex of the ovary.

The subgenus is characterized by a caespitose or shortly repent habit with well-developed ramicauls that are usually longer than the leaf. The erect, racemose inflorescence is terminal at the base of a narrowly cuneate or sessile leaf. The flowers are basically similar and usually resupinate. The dorsal sepal and the lateral

sepals are free from each other, at least above the base. The petals are small, simple and entire. The lip is small, ovate to oblong, and more or less concave. The base of the lip is truncate, shallowly concave on the end, and attached to an abbreviated column-foot. The column is semiterete, usually short, without wings or teeth, and with the anther and stigma apical or subapical.

Most species of the subgenus are locally endemic, scattered from Central America into the Andes. *Pleurothallis deregularis* is relatively frequent and widely distributed from Mexico into Brazil. A total of six species are recognized.

BINOMIALS PUBLISHED IN *PLEUROTHALLIS* REFERABLE TO SUBGENUS *PSEUDOSTELIS*

Pleurothallis bracteosa C.Schweinf. .....Fig. 1.
Pleurothallis clausa A.Rich. & Galeotti ex Rchb.f. = **P. deregularis**
Pleurothallis crassipes Rchb.f. non Lindl. = **P. deregularis**
Pleurothallis deregularis (Barb.Rodr.) Luer.....Fig. 2.
Pleurothallis magdalenae Rchb.f. .....Fig. 3.
Pleurothallis melanostele Luer & Vásquez .....Fig. 4.
Pleurothallis rufobrunnea Lindl. .....Fig. 5.
Pleurothallis schweinfurthiana L.O.Williams = **P. deregularis**
Pleurothallis simplex Ames & C.Schweinf. .....Fig. 6.
Pleurothallis stelidioides Schltr. = **P. magdalenae**

KEY TO THE SPECIES OF SUBGENUS *PSEUDOSTELIS*

1 Leaf round at the base; lip suborbicular.....*P. simplex*
1' Leaf narrowed into a petiolate or subpetiolate base.....2

2 Ramicaul less than 1 cm long.....*P. rufobrunnea*
2' Ramicaul more than 2 cm long 3

3 Lip transverse, obscurely trilobed.....*P. deregularis*
3' Lip oblong to ovate 4

4 Lip ovate-trilobed, deeply concave centrally, without calli.....*P. melanostele*
4' Lip oblong-trilobed, shallowly concave between calli.....5

5 Floral bracts large, enclosing part of the flower; lip concave between a central pair of calli .....*P. bracteosa*
5' Floral bracts small; lip shallowly concave between a longitudinal pair of calli.....
.....*P. magdalenae*

Pleurothallis bracteosa C.Schweinf., Fieldiana Bot. 33: 20, 1970.

Ety.: From the Latin *bracteosus*, "full of bracts," referring to the floral bracts of the raceme.

Plant medium in size, terrestrial (also epiphytic?), caespitose; roots slender. Ramicauls slender, erect, 6-8 cm long, with a close tubular sheath below the middle and 2 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 9-11 cm long, 1-1.5 cm wide, gradually narrowed below into an indistinct petiole 1-1.5 cm long. **Inflorescence** a strict, erect, distichous, densely and simultaneously, many-flowered raceme, 15 cm long including the peduncle ca. 3 cm long, from a slender spathe 7-8 mm long; floral bracts inflated, imbricating, 5-6 mm long; pedicels 2 mm long; ovary 1.5 mm long; **sepals** without color notes, appear to have been yellowish, glabrous, fleshy, subcarinate, 1-veined, the dorsal sepal ovate, concave, acute, 4 mm long, 1.5 mm wide, the lateral sepals triangular, concave, acute, 4 mm long, 1.5 mm wide, connate shortly at the base; **petals** membranous, oblong-ovate, obtuse, 2 mm long, 0.9 mm wide, 1-veined; **lip** fleshy, oblong-3-lobed, 2.5 mm long, 1 mm wide, the apex bullous-verrucose, broadly obtuse to subtruncate with undulating margins, the lateral lobes low, erect, oblong, the disc shallowly concave between a pair of submarginal calli near the middle, the base thickened, truncate, flattened on the end, hinged to the column-foot; **column** semiterete, 1.5 mm long, the foot thick, 0.5 mm long, the anther unhooded, subapical, stigma ventral.

PERU: **Cuzco:** Urubamba, among ruins of Machu Picchu, alt. 2400 m, 5 Nov. 1957, flowered in cultivation at the University of California Botanical Garden, 28 Nov. 1960, *P.C. Hutchison 1772* (Holotype: AMES), C. Luer illustr. 18522.

Although possibly more frequent than the single, known collection would suggest, this inconspicuous species was found growing among the ruins of Machu Picchu. It is characterized by the slender, caespitose habit; narrow leaves about as long as the ramicauls; and a slender, erect, congested raceme of small flowers engulfed by an equally large if not larger floral bract. The sepals are fleshy, subcarinate and single-veined; the petals are oblong and obtuse; and the lip is three-lobed with the anterior lobe oblong with bullous-like verrucosities.

Pleurothallis deregularis (Barb.Rodr.) Luer, Selbyana 2: 385, 1978.

Bas.: *Stelis deregularis* Barb.Rodr., Orch. Nov. 2: 94, 1882.

Ety.: from the Latin *deregularis*, "irregular," possibly implying a departure from the usual *Stelis*, the genus to which the species was being attributed.

Syn.: *Physosiphon spiralis* Lindl., Edwards' Bot. Reg. 21: sub. t. 1797, 1835, not *Pleurothallis spiralis* (Ruiz & Pav.) Lindl., 1830

Ety.: From the Latin (Greek) *spiralis*, "spiraled," referring to the raceme.

Syn.: *Pleurothallis clausa* A.Rich. ex Rchb.f., Cat. Orch.-Samml. Schiller ed. 3: 59, 1857, *nomen tantum*; not DePuydt, 1880, also *nomen tantum*.

Ety.: From the Latin *clausus*, "closed," referring to the flowers.

Syn.: *Pleurothallis crassipes* Rchb.f., Wawra Itin. Princ. S. Coburg 2: 82, 1888, not Lindl. 1859.

Ety.: From the Latin *crassipes*, "a thick foot," referring to the ramicaul.

Syn.: *Physosiphon deregularis* (Barb.Rodr.) Cogn., Fl. Bras. 3(4): 341, 1896.

Syn.: *Physosiphon minutiflorus* Ames & C.Schweinf., Sched. Orchid. 8: 11, 1925.

Ety.: From the Latin *minutiflorus*, "minutely flowered," referring to the inflorescence.

Syn.: *Pseudostelis deregularis* (Barb.Rodr.) Schltr., Anexos Mem. Inst. Butantan, Secc. Bot. 1(4): 38, 1922.

Syn.: *Pseudostelis bradei* Schltr., Anexos Mem. do Inst. Butantan 1(4): 38, 1922.

Ety.: Named for A.C. Brade who collected this species.

Syn.: *Pseudostelis spiralis* (Lindl.) Schltr., Anexos Mem. Inst. Butantan 1(4): 38, 1922.

Syn.: *Pleurothallis schweinfurthiana* L.O.Williams, Ceiba 5: 92, 1956, nom. nov., not *Pleurothallis minutiflora* Hoffmanns. 1841, not S.Wats. 1888, not (Barb.Rodr.) Cogn. 1896.

Ety.: Named in honor of Charles Schweinfurth, friend and author of the *Orchids of Peru*.

Plant small to medium in size, epiphytic, densely caespitose; ramicauls fasciculate, slender, erect, 2-12 cm long, mostly concealed by a loose tubular sheath and 2-3 basal sheaths. **Leaf** coriaceous, narrowly elliptical-linear, subacute to obtuse, 4-11 cm long, 1-1.7 cm wide, narrowly cuneate below into an

indistinct petiole 0.5-1 cm long. **Inflorescence** 1-3 distichous to subsecund, densely and simultaneously many-flowered racemes of tiny flowers, 10-20 cm long including the peduncle 2-4 cm long; spathe ca. 1 cm long; floral bracts tubular, 1.5-2 mm long; pedicels 0.5-1 mm long; ovary 1 mm long; sepals white to pale yellow-green, glabrous, elliptical, obtuse, connate 0.75-1 mm into a minute, cylindrical tube, the dorsal sepal 2.5-3 mm long, 1 mm wide, faintly 3-veined, the lateral sepals 2.5-3 mm long, 1-1.3 mm wide, faintly 3-veined; **petals** translucent, elliptical-oblong, obtuse, sometimes obscurely lobed on the upper margin, 0.6-0.75 long, 0.3-0.5 mm wide, obscurely 1-veined; **lip** yellow, transversely subtrilobed, 0.6-0.8 mm long, 0.9-1 mm wide, with the apex and lateral margins rounded, the sides suberect, thickened, the disc slightly concave above a transverse callus across the base, flat on the end, firmly hinged below to a rudimentary column-foot; **column** stout, 0.6-0.8 mm long, the anther and stigma subapical.

BRAZIL: **Rio de Janeiro**: shady forests of Mt. Rodeio near Rio de Janeiro, Mar., *B. Rodrigues s.n.* (Holotype of *Stelis deregularis*: illustr. of Barbosa Rodrigues). **Paraná**: Porto Dom Perdo II, 1 Apr. 1910, *P. Dusén 9889* (AMES, S). **Espirito Santo**: Guiomor, 15 Aug. 1940, *M. & R. Foster 974* (AMES). Without locality, 1879, *H. Wawra 195?* (Lectotype of *P. crassipes* Rchb.f.: W); 1879, *H. Wawra 351* (W). **Santa Catharina**: near Port Santa Catharina, *Tweedy s.n.* (holotype of *Physosiphon spiralis*: K). **São Paulo**: Iguape, Moro das Pedras, 1920, *A.C. Brade 7793* (holotype of *Pseudostelis bradei* destroyed at B; neotype here designated: US); Serra do Mar, near Juquiá, alt. 300 m, 6 Apr. 1965, *Grupo de Piracicaba 11046* (M, SP). Without locality, Brazil, Apr. 1843, *A. Rich. s.n.* (holotype of *Pleurothallis clausa*: K; isotype: P); without locality: *Eschscholz 1383* (LE); without locality: 1818, *J. Marc. Schröder 1222* (LE).

ECUADOR: **Carchi**: above Maldonado, alt. 1500 m, 21 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2691* (SEL); terrestrial on road-cut west of pass between Tulcán and Maldonado, alt. 1600 m, 16 Mar. 1991, *C. Luer, J. Luer, A. Hirtz & J. Del Hierro 15088* (MO); epiphytic between Maldonado and Chical, alt. 1400 m, 17 Mar. 1991, *C. Luer, J. Luer, A. Hirtz & J. Del Hierro 15116* (MO). **Imbabura**: east of Lita, alt. 800 m, 13 Jan. 1992, *C. Luer, J. Luer, A. Hirtz et al. 15594* (MO). **Pichincha**: orange grove north of Santo Domingo, alt. 2400 m, 29 July 1980, *R. Sauleda, M. Ragan, H. Luther, R. Wunderlin, et al. 3795* (AMES, USF); orange grove between Patricia Pilar and Santo Domingo, alt. 1900 m, 28 July, 1980, *R. Sauleda, M. Ragan, H. Luther, R. Wunderlin, et al. 3789* (AMES, USF). **Los Ríos**: Río Palenque Science Center, alt. 200 m, 8 June 1974, *C. H. Dodson 5561* (SEL). **Chimborazo**: vicinity of Huigra, Hda. Licay, 17 Aug. 1918, *J.N. Rose & G. Rose 22151* (AMES, NY, US); Huigra, alt. 1200 m, 4 July 1923, *A. S. Hitchcock 20748* (AMES, NY, US).

PANAMA: **Chiriquí**: Cerro Vaca, alt. 900-1130 m, Dec. 1911, *H. Pittier 5340* (US); Caramillo, alt. 5,000 ft., Oct. 1923, *C.W. Powell 345* (holotype of *Physosiphon multiflorus*: AMES).

COSTA RICA: **Alajuela**: forests of San Ramón, alt. 1500-1600 m, May 1913, *A. Tonduz 17627* (US, W); without locality, ca. 1867, *A. Endres 229, 258* (W); San Pedro de San Ramón, alt. 900 m, 13 Feb. 1923, *A.M. Brenes 612* (AMES). **Cartago**: El Muñeco, Río Navarro, alt. 1400-1500 m, 6-7 Mar. 1926, *P.C. Standley & R. Torres 51676* (AMES); El Muñeco, alt. 3,700 ft., *H.E. Stork 1462* (AMES); El Muñeco, alt. 4,500 ft., 19 June 1928, *H.E. Stork 2669* (AMES); La Fuente, alt. 1200 m, 16 Dec. 1925, *A. Alfaro 129* (AMES, US); Orosi, 30 Mar. 1934, *P.C. Standley 39922* (AMES); Tapantí, alt. 1450 m, 4 June 1967, *R.W. Lent 1030* (AMES). **Guanacaste**: El Arenal, vicinity of Tilaran, alt. 500-600 m, 10 Jan. 1926, *P.C. Standley & J. Valerio 44460* (AMES, US); Gulf of Nicoya, Curú, July 1921, *O. Jiménez 2022* (AMES).

HONDURAS: **Cortes**: Santa Cruz de Yojoa, alt. ca. 650 m, 24 Nov. 1933, *J.B. Edwards 611* (AMES, SEL). **Paraiso**: between El Junquillo and Teupasenti, alt. 1400 m, 26 Apr. 1963, *A. Molina 11956* (F, W).

NICARAGUA: **Boaco**: Cerro Mombachito, northeast of Camoapa, alt. 700-1000 m, 1 Feb. 1979, *A. Grijalva & M. Araquistain 104* (LE, NIC). Without collection data, cultivated by J & L Orchids, Easton, CT, 28 June 1976, *C. Luer 1009* (SEL).

This species was first described by Lindley in 1835 from a Brazilian collection as *Physosiphon spiralis*. He had also used that epithet in 1830 when he transferred *Humboldtia spiralis* to *Pleurothallis*. The species was next mentioned as *P. clausa* in a list of species in Consul Schiller's collection in 1857. It was illustrated by Endres about 1867 from Costa Rica. In 1882, Barbosa Rodrigues described it from Brazil as *Stelis deregularis*, which was transferred to *Physosiphon* by Cogniaux, and to a new genus, *Pseudostelis*, by Schlechter. It had been described again in 1888 by Reichenbach as *P. crassipes*, but Lindley had used the epithet in 1859 for a different species. Consequently, the earliest available name in *Pleurothallis* for this taxon is Rodrigues' *deregularis* when the transfer was made in 1978.

This species is morphologically variable within three large areas of lowland forests in Central America, Ecuador and Brazil. No doubt it occurs within all the

political boundaries between the extremes, but nowhere are there many collections. Perhaps many collections are residing among the unidentified *Stelis*.

Superficially, the species resembles a *Stelis* with the narrowly elliptical leaf, a shorter ramicaul, and one to three slender, congested, very small-flowered racemes that surpass the leaf. The sepals are simple and connate basally; the petals are minute, membranous and 1-veined if at all; and the transverse lip is obscurely trilobed in varying proportions with suberect, obtuse, sides or lateral lobes and a similar apical lobe. There are no calli but the narrowly concave base below a transverse callus is firmly attached to the tip of the column-foot.

Pleurothallis magdalenae Rchb.f., Bonplandia 3: 72, 1855.

Ety.: Named for Magdalena, either the river or the community, near where the species was collected.

Syn.: *Humboldtia magdalenae* (Rchb.f.) Kuntze, Rev. Gen. Pl. 667, 1891.

Syn.: *Pleurothallis stelidioides* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 116, 1920.
Ety.: Named for the superficial similarity of the species to a species of *Stelis* Sw.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-12 cm long, with a tubular sheath near the middle and 2 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 2.5-7.5 cm long, 0.7-1 cm wide, the base narrowly cuneate into an indistinct petiole. **Inflorescence** an erect, strict, sublax, subsecund, simultaneously several- to many-flowered raceme 5-15 cm long including the peduncle 2.5-4.5 cm long, from a spathe 5 mm long with an annulus 1-2 mm below the apex of the ramicaul; floral bracts oblique, acute, 2-4 mm long; pedicel 1-3 mm long; ovary 1-3 mm long; **sepals** dull lavender, suffused with purple along the veins, glabrous, fleshy, subcarinate, the dorsal sepal elliptical, obtuse, 2.75-5 mm long, 1.5-2 mm wide, 3-veined, the lateral sepals ovate, subacute to obtuse, oblique, 2.25-4 mm long, 1.25-2 mm wide, 3-veined, free; **petals** translucent lavender or white, oblong, obtuse, 2-3.5 mm long, 1 mm wide, thickened along the single vein; **lip** purple, thick, oblong-ovoid, 2.5-3 mm long, 1.5 mm wide, the rounded apex smooth to more or less erose, verrucose, the margins low, erect, the disc deeply channeled between a pair of longitudinal calli, the base truncate, concave on the end, strongly hinged to the column-foot; **column** terete, 1.5 mm long, minutely denticulate at the apex, the foot thick, 0.5-1 mm long, the anther and rostellum subapical, the stigma ventral.

COLOMBIA: Old dept. of Ocaña: "Magdalena," ca. 1854, *H. Wagener s.n.* (Holotype: W). **Santander**: epiphytic in forest below Páramo de Jurisdicciones, alt. 2800 m, 11 Nov. 1981, *C. Luer, J. Luer, R. Escobar & D. Portillo 6663* (SEL). **Antioquia**: El Retiro, La Horqueta, alt. 2500 m, collected by F. Lopez et al., flowered in cultivation at Colomborquídeas, 5 Jan. 1993, *R. Escobar 5226* (MO), C. Luer illustr. 16612; San José de la Montana, alt. 2500 m, collected by Chepe Restrepo, flowered in cultivation at La Ceja by M. & O. Robledo, 19 Mar. 1989, *C. Luer 14269*; Yarumal, El Manicomio, alt. 2500 m, 12 Sept. 1984, *C. Dodson, E. Escobar & E. Valencia 15276*; Medellín, between San Pedro and Don Matius, alt. 2500-2700 m, 15 Sept. 1984, *C.H. Dodson, R. Escobar & E. Valencia 15306* (MO). **Tolima**: San Augustín, 27 Mar. 1899, *T.A. Sprague 312* (K). **Cauca**: dense forests around Chiribio and Paisbamba above Popayán, alt. 1800-2400 m, Mar. 1885, *F.C. Lehmann 8198* (holotype of *P. stelidioides* presumably destroyed at B; lectotype here designated: AMES; isolectotypes: HB, K, US), C. Luer illustr. 15484; western slopes of Sotara, alt. 2900 m, 21 Feb. 1884, *F.C. Lehmann 3695* (K), C. Luer illustr. 17089.
EDUADOR: **Zamora-Chinchipe**: epiphytic in forest east of the pass between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13582* (MO, QCNE). **Loja**: mountainside above Loja, alt. 2600 m, 28 July 1939, *C.W. Penland & R.H. Summers 1143* (COCO), C. Luer illustr. 16338. Without collection data, *F.C. Lehmann 170* (W).
BOLIVIA: **Cochabamba**: Chapare, 19 Mar. 1929, *J. Steinbach s.n.* (AMES).

This species is widely distributed through Colombia and Ecuador. Superficially, it is similar to the common and sympatric *P. divaricans* of subgenus *Pleurothallis* with connate lateral sepals. Although *P. magdalenae* is somewhat variable morphologically, it is distinguished by the slender habit with narrow, subpetiolate leaves about equal in length to the ramicauls. The secund inflorescence of small, simultaneous flowers is often about twice as long as the leaf. The sepals are free, usually light purple and glabrous, but on many specimens examined, the external surfaces

are covered by a web of hyphae; the petals are oblong and obtuse with the midvein thickened; the oblong lip is very thick with the rounded apex either smooth or lightly subverrucose, and the disc is broadly channeled between a pair of parallel calli.

Pleurothallis melanostele Luer & Vásquez, Phytologia 49: 210, 1981.

Ety.: From the Greek *melanostele*, "a black column," referring to the column and anther.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls fasciculate, slender, erect, 5-12 cm long, with a tubular sheath near the middle and 2-3 imbricating sheaths about the base. **Leaf** erect, coriaceous, narrowly oblong, obtuse, 6-12 cm long, 1.2-2 cm wide, cuneate below into a petiole 1-1.5 cm long. **Inflorescence** racemose, 1-2 erect, slender, simultaneously and densely many-flowered, distichous racemes 10-15 cm long including the slender peduncle 1-2 cm long, subtended by a spathe 1-1.5 cm long, from an annulus 5 mm below the abscission layer; floral bracts 2.5 mm long; pedicels 0.5 mm long; ovary 1.5 mm long; **sepals** light yellow-green, subcarinate, ciliate, glabrous, ovate, obtuse, 1-veined, the dorsal sepal concave, 2.5 mm long, 1.5 mm wide, the lateral sepals, 2.5 mm long, 1.5 mm wide, connate 0.5 mm at the base; **petals** translucent yellow, oblong, obtuse-truncate, 1.25 mm long, 0.9 mm wide, 1-veined; **lip** yellow-green, fleshy, ovate-subtrilobed, concave, 2 mm long, 1.25 mm wide, the apical lobe thick, obtuse, microscopically subverrucose, the basal lobes or margins broadly rounded, erect below the middle, the disc shallowly concave, with a transverse callus above the base, the base broadly truncate, articulated with a thick, rudimentary column-foot; **column** purplish black, stout, semiterete. 1.5 mm long, with a pedestal-like base, the anther subapical.

BOLIVIA: **La Paz**: Inquisivi, cloud forest between Inquisivi and Circuata, alt. 2550 m, 28 Jan. 1981, *C. Luer, J. Luer & R. Vásquez 5798* (Holotype: SEL); north of Inquisivi, alt. 2850 m, 27 Jan. 1981, *C. Luer, J. Luer & R. Vásquez 5751* (SEL).

In habit this species, apparently endemic in central Bolivia, resembles a *Stelis* with the slender, densely many-flowered raceme of tiny yellow-green flowers emerging from a small spathe near the base of a petiolate leaf. The sepals are obtuse and single-veined, the laterals connate only basally. The petals are translucent and obtuse. The lip is thick, concave and obscurely lobed below the middle. The stout column and anther are conspicuous and purple-black.

Pleurothallis rufobrunnea Lindl., Folia Orch. *Pleurothallis* 36, 1859.

Ety.: From the Latin *rufobrunneus*, "red-brown," referring to the color of the flowers.

Syn.: *Humboldtia rufobrunnea* (Lindl.) Kuntze, Rev. Gen. Pl. 668, 1891.

Syn.: *Stelis rufobrunnea* (Lindl.) L.O.Williams, Bot. Mus. Leafl. 7: 188, 1939.

Syn.: *Apatostelis rufobrunnea* (Lindl.) Garay, Bot. Mus. Leafl. 27: 190, 1980.

Plant small, epiphytic, caespitose; ramicauls slender, erect, 5-10 mm long, mostly concealed by 2-3 tubular sheaths. **Leaf** coriaceous, narrowly obovate, subacute to obtuse, 1.5-3 cm long, 3-6 mm wide, narrowly cuneate below into an indistinct petiole 0.3-1 cm long. **Inflorescence** an erect, distichous, nearly simultaneously many-flowered raceme of tiny flowers, 2.5-5 cm long including the peduncle 1.5-3 cm long borne laterally from the ramicaul; floral bracts infundibular, 1-1.5 mm long, 1.5 mm wide; pedicels 0.5 mm long; ovary 0.75 mm long; **sepals** fleshy, dark grayish purple, microscopically cellular-glandular, ovate, obtuse, connate about one fourth the length, 1.4-2 mm long, 1-1.2 mm wide, 3-veined, the laterals 1.4-1.8 mm long, 0.8-1 mm wide; **petals** fleshy, cellular-glandular, cuneate-obovate, obtuse, 1 long, 0.6-0.75 mm wide, obscurely 3-veined; **lip** fleshy, ovate, obtuse, 0.8 mm long, 0.6 mm wide, the disc shallowly concave in the apical third, callous below with a pair of low promintories, the base truncate, hinged to the base of the column; **column** stout, semiterete, 0.8 mm long, 0.6 mm wide, cellular-papular above the base, the anther apical, the stigma small, spherical, beneath the rostellar flap.

MEXICO: **Oaxaca**: on rocks near Oaxaca, alt. 6,500 ft., Apr. 1840, *H.G. Galeotti 5036* (Holotype: K; Isotype: LE); south of Sola de Vega, road to Puerto Escondido, alt. 1800 m, 30 Sept. 1965, *J. Rzedowski 21325* (ENCB); road to Tuxtepec, alt. 2650 m, 21 July 1987, *P.M. Catling, E. Greenwood & F.H. Catling M-54* (AMO); road to Tuxtepec, alt. 2550 m, 8 Sept. 1988, *G. Salazar, M.A. Soto & E. Yañez 3755* (AMO), C. Luer illustr. 19185; road to Guelatao, 12 Dec. 1983, *M.W. Chase 83308* (AMO, MO), C. Luer illustr. 17354. **Guerrero**: semi-humid forests of the Sierra Madre, alt. 2000-2400 m, *E. Hágsater & R.L.*

Dressler s.n. (AMO); between Xochipala and Atoyac, below El Gallo, Mar. 1972, *E. Hágsater 2441* (AMO); Pedregal de Cruz de Ocote, alt. 1900 m, Feb. 1974, *E. Hágsater 3791* (AMO); between Paraiso and El Gallo, alt. 1820 m, June 1975, *E. Hágsater 3921* (AMO); Atlixtac, between Chilapa and Hueycaltenango, alt. 2000 m, 24 Feb. 1991, *R. Jiménez 1191* (AMO). **Jalisco**: northeast of Ciiudad Guzmán, alt. 1800 m, 24 Sept. 1936, *O. Nagel & J. Navarro 6203* (AMES); EL Floripondio, between Guzman and Tonaya, alt. 2300 m, 12 Oct. 1987, *R. Sotero 700* (AMO). **Michoacan**: near Morelia, Cerro Azúl, alt. 2200 m, 1911, *B.S. Arsene & E. Yañez 6971* (AMES); near Morelia, alt. 2000 m, 18 Nov. 1937, *E. Vera sub Oestlund* (AMO).

This tiny species was recognized as *Pleurothallis rufobrunnea* by Lindley in 1859. In 1939, L.O. Williams transferred it to *Stelis*. Superficially, it does indeed resemble a *Stelis*, but the flowers are *Pleurothallis*. It is closely allied to the vegetatively larger *P. deregularis*.

This minutely-flowered species, found relatively frequently in the mountains of southern Mexico, resembles a tiny species of *Stelis*, but the morphology of the flower indicates that it belongs to *Pleurothallis*. With a short column with an apical anther and stigma, it is closely related to subgenus *Pleurothallis*, but criteria for the latter include connate lateral sepals. The three more or less equal sepals, less than one and a half millimeters long, spread like they do in many species of *Stelis*. The minute petals are obovate, and the simple lip is ovate, obtuse and concave toward the apex, but callous below, very much resembling the lip of a *Stelis*.

Pleurothallis simplex Ames & C.Schweinf., Sched. Orch. 10: 37, 1930.

Ety.: From the Latin *simplex*, "simple," referring to the lip.

Plant medium in size, epiphytic, shortly repent to caespitose; roots slender. Ramicauls slender, erect, 12-16 cm long, with a tubular sheath near the middle and 2-3 imbricating sheaths about the base. **Leaf** erect, coriaceous, elliptical-oblong, obtuse, 6-8 cm long, 2-3.5 cm wide, rounded at the sessile base. **Inflorescence** an erect, slender, subflexuous, densely many-flowered distichous raceme 10-16 cm long including the peduncle 4-5 cm long, several flowers open simultaneously, subtended by a spathe 1-1.5 cm long, at the base of the leaf; floral bracts 2-3 mm long; pedicels 1 mm long; ovary 2 mm long; **sepals** fleshy, subcarinate, glabrous, ovate, broadly ovate, obtuse, free from each other, the dorsal sepal concave, 2.5 mm long, 2 mm wide, indistinctly 3-veined, the lateral sepals, 2.5 mm long, 1.75 mm wide, 1-veined; **petals** translucent, oblong, obtuse, 1.8 mm long, 0.6 mm wide, 1-veined; **lip** fleshy, suborbicular, shallowly concave, 2 mm long, 2 mm wide, round at the apex, the base truncate with a transverse callus, concave on the end, articulated with a thick, rudimentary column-foot; **column** semiterete, 1 mm long, the anther and stigma subapical.

COSTA RICA: **San José**: Cerro de las Vueltas, alt. 2700-3000 m, 29 Dec. 1925-1 Jan. 1926, *P.C. Standley & J. Valerio 44023* (Holotype in fruit!: AMES; Isotype: US). **San José-Cartago**: Cordillera de Talamanca, Cerros Cuericí, Parqué Nacional Chirripo, alt. 3200 m, 16 Sept. 1983, *G. Davidse 24811* (AMES, MO), C. Luer illustr. 17057.

This uncommon species, which superficially resembles a *Stelis*, is without close relatives in Central America. The elliptical, obtuse, sessile leaf is borne by a longer ramicaul, and surpassed about twice its length by a slender, erect raceme. Several minute flowers are produced simultaneously in a successively flowered raceme. The sepals are fleshy, free and obtuse; the petals are oblong and obtuse; and the lip is suborbicular with a transverse callus across the base.

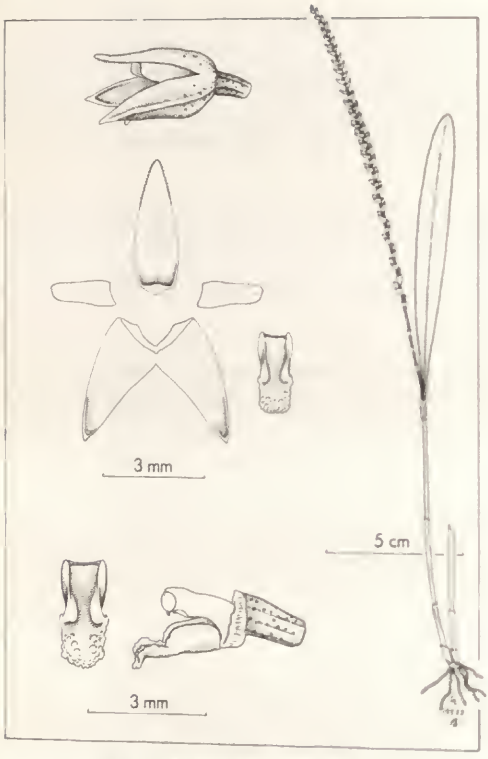


Fig. 1. Pleurothallis bracteosa

Fig. 2. Pleurothallis deregularis

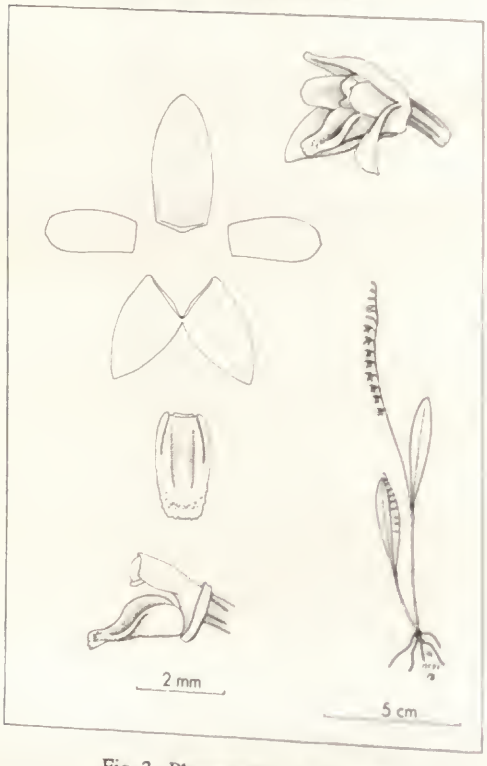


Fig. 3. Pleurothallis magdalenae

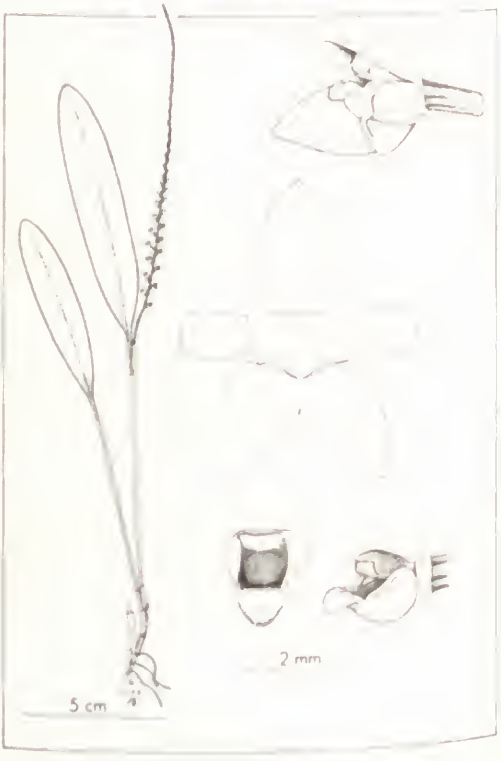


Fig. 4. Pleurothallis melanostele

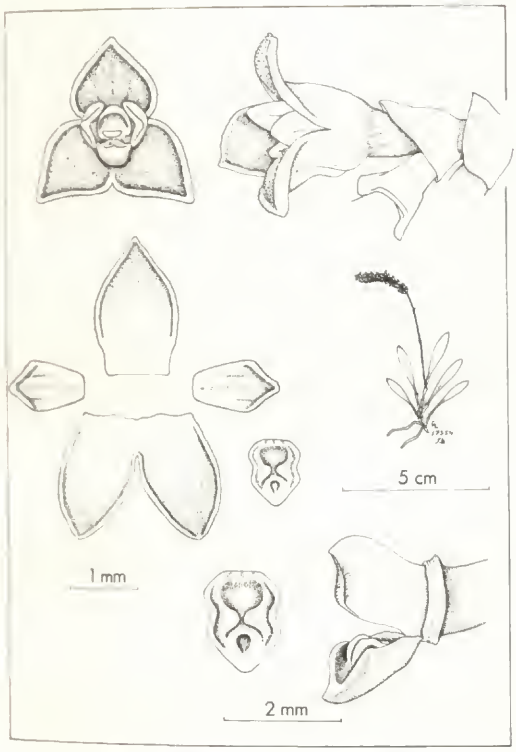


Fig. 5. Pleurothallis rufobrunnea

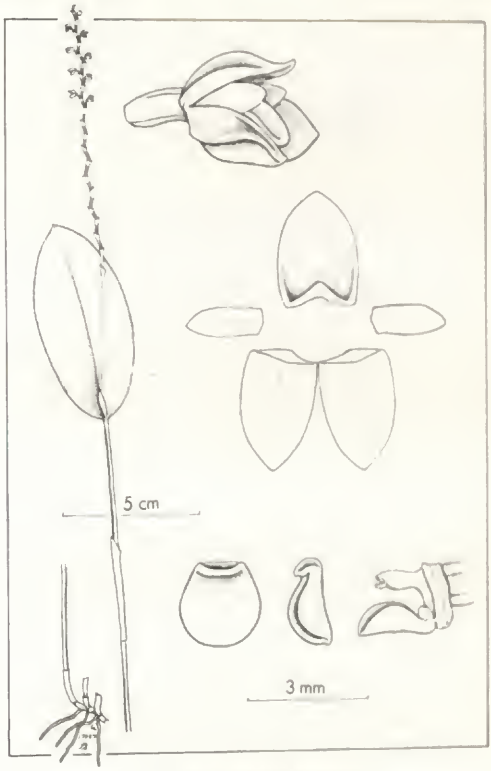
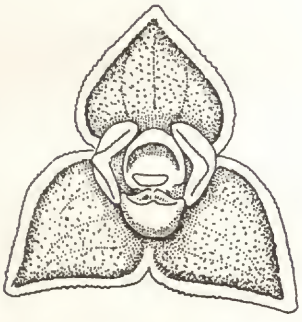


Fig. 6. Pleurothallis simplex

INDEX OF SCIENTIFIC NAMES
of subgenus *PSEUDOSTELIS*

Apatostelis rufobrunnea 92
Humboldtia magdalenae 91
  rufobrunnea 92
  spiralis 87, 90
Physosiphon 87
  deregularis 87, 89
  multiflorus 89
  spiralis 87, 89, 90
Pleurothallis 87, 89, 91, 93
  subgen. Pleurothallis 87
  subgen. Pseudostelis 87, 88
Pleurothallis bracteosa 88, **89**, Fig. 1.
  clausa 88, 89
  crassipes 88, 89, 90
  deregularis 87, 88, 93, **89**, 93, Fig. 2.
  divaricans 91
  magdalenae 88, **91**, Fig. 3.
  melanostele 88, **92**, Fig. 4.
  minutiflora 89
  rufobrunnea 88, **92**, 93, Fig. 5.
  schweinfurthiana 88
  simplex 88, *93*, Fig. 6.
  spiralis 89
  stelidioides 88, 91
Pseudostelis 87, 88, 90
  bradei 87, 89
  deregularis 89
  spiralis 89
Stelis 91, 92, 93
  deregularis 87, 89, 90
  rufobrunnea 92



SYSTEMATICS OF *PLEUROTHALLIS* SUBGENUS *ACUMINATIA*

ABSTRACT

Subgenus *Acuminatia* Luer, previously treated by Lindley as *Pleurothallis* section *Acuminatae* and by Barbossa Rodrigues as genus *Anathallis*, is described, and a key to the species is given. Each species is described and illustrated with a black and white drawing. The subgenus is characterized by free sepals and an elongate, more or less winged column.

Names of New taxa:
Pleurothallis subgen. **Acuminatia** Luer, subgen. nov.
Pleurothallis subgen. **Acuminatia** sect. **Alatae** Luer, sect. nov.
Pleurothallis dimidia Luer, sp. nov.
Pleurothallis lagarophyta Luer, nom. et stat. nov.
Pleurothallis maguirei Luer, sp. nov.
Pleurothallis schlimii Luer, sp. nov.
Pleurothallis spathuliformis Luer & Vásquez, sp. nov.

The first species attributable to subgenus *Acuminatia* is *Pleurothallis acuminata* (H.B.K.) Lindl., described as *Dendrobium acuminatum* by Kunth in 1816 from the collections of Humboldt and Bonpland. Lindley transferred it to *Pleurothallis* in 1842. It has proved to be frequent and variable in a wide distribution.

The well-circumscribed subgenus *Acuminatia* was first indicated by Lindley in his *Folia Orchidacea* of 1859, when he described it as a section of *Pleurothallis*. As section *Acuminatae*, he noted two subdivisions: *Lepanthiformes* for four species with acuminate sepals now treated in *Trichosalpinx* Luer, and the second without lepanthiform sheaths that contained *P. acuminata* and five other closely related species, as well as many unrelated species with only elongated racemes of flowers with acuminate sepals in common.

In 1877, Barbosa Rodrigues proposed the genus *Anathallis* for two of the species: *Anathallis fasciculata* (= *Pleurothallis obovata*) and *Anathallis racemosa* (= *Pleurothallis acuminata*). By this time, 12 related species had been described when Barbosa Rodrigues proposed the genus *Anathallis* for two of them, but with new names and descriptions. Of the first 12 binomials, five are deemed today synonymous with other species.

In Martius' *Flora Brasiliensis* of 1896, Cogniaux treated *Anathallis* as a section of *Pleurothallis* with eight subsections, which included species of *Myoxanthus* Poepp. & Endl., *Platystele* Schltr., and subgenera *Acianthera* (Scheidw.) Luer, *Effusoria* Luer and *Specklinia* (Lindl.) Garay.

In *Icones Pleurothallidinarum*-III (Luer, 1986), subgenus *Acuminatia* was treated as section *Acuminatae* in subgenus *Specklinia*. Subgenus *Specklinia*, as now defined with less liberal boundaries, can no longer accommodate this taxon as a section. Subgenus *Specklinia* is characterized by a small habit, almost always with a ramicaul distinctly shorter than the leaf. The floral variations are legion.

Subgenus *Acuminatia* is widely distributed from southern Mexico into southern Brazil. Eighty-eight binomials have been attributed to the subgenus, many of which are treated as synonyms. The 32 species treated here are Andean or from regions farther north (Central America and the Antilles), but five of them also occur in Brazil. About 23 species are found in Brazil, including the five that range farther north. These species will be treated in the *Pleurothallis of Brazil*. See page 123.

SUBGENUS *ACUMINATIA*

Pleurothallis subgen. **Acuminatia** Luer, subgen. nov.

Type: *Dendrobium acuminatum* H.B.K., Nov. Gen. Sp. 1: 357, 1816. = *Pleurothallis acuminata* (H.B.K.) Lindl., Edwards' Bot. Reg. 28: Misc. 70, 1842.

Ety.: From the Latin *acuminatus*, "acuminate," referring to the sepals.

Inflorescentia racemiflora flores simultanei, sepala libera, labellum oblongum.

Syn.: *Pleurothallis* sect. *Acuminatae* Lindl., Folia Orch. *Pleurothallis* 32, 1859.

Syn.: *Anathallis* Barb.Rodr., Gen. Sp. Orch. Nov. 1: 23, 1877.

Lectotype: *Anathallis fasciculata* Barb.Rodr., Gen. Sp. Orch. Nov. 1: 23, 1877. (Garay, Orquideología 9: 122, 1974) = *Pleurothallis obovata* Lindl.

Ety.: From the Greek *anathallos*, "without branches," without an obvious object of reference.

Syn.: *Pleurothallis* sect. *Anathallis* (Barb.Rodr.) Cogn., Fl. Bras. 3(4): 380, 1896.

Syn.: *Pleurothallis* sect. *Margaritifera* Schltr., Notizbl. Bot. Bart. Berlin-Dahlem 7: 272, 1918.

Type: *Pleurothallis margaritifera* Schltr., Notizbl. Bot. Bart. Berlin-Dahlem 7: 272, 1918.

Ety.: From the Latin *margaritifer*, "pearl-bearing," referring to the beaded callus of the lip.

Plants perennial, small, medium in size to large, epiphytic to terrestrial, caespitose to shortly repent; roots slender. Ramicauls erect, short to elongated, non-pseudobulbous, unifoliate, enclosed by a tubular, glabrous sheath above or below the middle, and other sheaths at the base. **Leaf** erect, coriaceous, smooth, green, more or less elliptical with the apex acute to obtuse, shallowly notched, the base narrowly cuneate to petiolate. **Inflorescence** 1 to several, erect to suberect, simultaneously flowered racemes, the flowers usually resupinate, variously colored, borne by a slender peduncle that emerges laterally with an annulus below the abscission layer, with an inconspicuous spathe; floral bracts infundibular or tubular; pedicels longer or shorter than the floral bract; ovary smooth, trivalvate; **sepals** membranous, glabrous to pubescent or papillose within, ovate to elliptical, acute to acuminate but non-caudate, free from each other; **petals** elliptical to obovate, acute to obtuse, entire (rarely minutely denticulate), often with a prominent midvein; **lip** entire, more or less oblong or obovate, obtuse to rounded at the apex, entire to occasionally denticulate or verrucose, the disc more or less longitudinally concave between calli or erect sides below the middle, the base truncate, hinged to the tip of the column-foot; **column** elongate, terete to winged or toothed at the apex, the anther, rostellum and stigma ventral, the pollinia 2, obovoid, with a minute viscidium, the base of the column variously prolonged into a column-foot.

Subgenus *Acuminatia* is characterized by a ramicaul about as long as or longer than a petiolate or subpetiolate leaf that is not sessile. The inflorescence is racemose, the racemes borne laterally either singly and successively or several simultaneously in a fascicle from an annulus a short distance below the abscission layer, the apex of the ramicaul. The flowers are produced more or less simultaneously in short or elongated racemes. The three sepals are similar and free, the petals are small and entire, and the lip is oblong or elliptical, usually shallowly concave centrally between parallel calli or erect margins below the middle. The column is slender, sometimes winged, with the anther and stigma ventral. The pair of pollinia are attached to a single, small viscidium. The column-foot is well-developed, extending beyond the end of the ovary. The lip is delicately hinged to the tip.

The common species (e.g. *P. acuminata, P. citrina* and *P. obovata*) are very variable, especially in size, many variations having been given specific names. Many others found locally seem sufficiently distinct to be recognized as species.

Two sections in the genus are recognized. In section *Acuminatae*, the petals are broadly obtuse to rounded at the apex, and the column is slender and narrowly winged. In section *Alatae*, the petals are narrowly acute to acuminate, and the column is broadly winged above the middle.

Section **Acuminatae** Lindl., Folia Orch. *Pleurothallis* 32, 1859.
Type: *Pleurothallis acuminata* (H.B.K.) Lindl.

This section is characterized by sepals that are pubescent within, by petals that are broadly obtuse to rounded at the apex, and by the column that is slender or with narrow, longitudinal wings. The lip is variously callous or lobed. Of the 27 species presently recognized (excluding those species endemic in Brazil), 18 species belong to this section.

Section **Alatae** Luer, sect. nov.
Type: *Pleurothallis obovata* (Lindl.) Lindl., Edwards' Bot. Reg. 28: Misc.: 75, 1942.
Ety.: From the Latin *alatae*, "winged," referring to the column.

Columna manifeste alata.

This section is characterized by glabrous sepals, petals that are narrowly acute to long-acuminate at the apex, and by the column with broad, more or less rectangular wings above the middle. The lip is simple with a shallow, midline channel. Five species (excluding those species endemic in Brazil), belong to this section.

BINOMIALS PUBLISHED IN *PLEUROTHALLIS* REFERABLE TO SUBGENUS *ACUMINATIA*

(excluding species endemic in Brazil, see page 123)

Pleurothallis acuminata (H.B.K.) Lindl. ..... Fig. 1.
Pleurothallis albida Lindl. = **P. obovata**
Pleurothallis amblyopetala Schltr. = **P. rubens**
Pleurothallis anderssonii Luer ..... Fig. 2.
Pleurothallis angustilabia Hoehne & Schltr., non Schltr. 1921 = **P. citrina**
Pleurothallis angustilabia Schltr. ..... Fig. 3.
Pleurothallis angustipetala C.Schweinf. = **P. acuminata**
Pleurothallis ariasii Luer ..... Fig. 4.
Pleurothallis asperilinguis Rchb.f. & Warsz. ..... Fig. 5.
Pleurothallis aurea Lindl. = **P. acuminata**
Pleurothallis aurea var. *asperilinguis* = **P. asperilinguis**
Pleurothallis brachyantha Schltr. = **P. citrina**
Pleurothallis brittonii Rolfe = **P. acuminata**
Pleurothallis candida Luer & Hirtz ..... Fig. 6.
Pleurothallis carnosifolia C.Schweinf. ..... Fig. 7.
Pleurothallis citrina Schltr. ..... Fig. 8.
Pleurothallis citrina var. *elliptica* C.Schweinf. = **P. angustilabia**
Pleurothallis concinna Luer & Vásquez ..... Fig. 9.
Pleurothallis coripatae Luer & Vásquez ..... Fig. 10.
Pleurothallis dendrophila Rchb.f. = **P. obovata**
Pleurothallis densiflora (Barb.Rodr.) Cogn. = **P. obovata**
Pleurothallis densiflora var. *parvifolia* Cogn. = **P. obovata**
Pleurothallis dimidia Luer ..... Fig. 11.
Pleurothallis dolichopus Schltr. ..... Fig. 12.
Pleurothallis dolichopus var. *bradeorum* = **P. dolichopus**

Pleurothallis excisa C.Schweinf. = **P. rubens**
Pleurothallis fasciculata (Barb.Rodr.) Cogn. = **P. obovata**
Pleurothallis gracilenta Luer & Vásquez .....Fig. 13.
Pleurothallis guentheri Schltr. = **P. citrina**
Pleurothallis jesupiorum Luer & Hirtz .....Fig. 14.
Pleurothallis lagarophyta Luer.....Fig. 15.
Pleurothallis lamprophylla Schltr. = **P. dolichopus**
Pleurothallis listrostachys Rchb.f. = **P. sclerophylla**
Pleurothallis maguirei Luer.....Fig. 16.
Pleurothallis mediocarinata C.Schweinf. .....Fig. 17.
Pleurothallis melanopus Lehm. & Krzl. = **P. stenophylla**
Pleurothallis meridana Rchb.f. .....Fig. 18.
Pleurothallis minutiflora Cogn. = **P. obovata**
Pleurothallis modestiflora Schltr. = **P. obovata**
Pleurothallis montserratii Porsch = **P. rubens**
Pleurothallis nigro-hirsuta Krzl. = **P. acuminata**
Pleurothallis obovata (Lindl.) Lindl. .....Fig. 19.
Pleurothallis ochroleuca Schltr. = **P. acuminata**
Pleurothallis octomeriaeformis Rchb.f. = **P. obovata**
Pleurothallis osmosperma (Barb.Rodr.) Cogn. = **P. obovata**
Pleurothallis ottonis Schltr. = **P. sclerophylla**
Pleurothallis papuligera Schltr. .....Fig. 20.
Pleurothallis peregrina Ames = **P. dolichopus**
Pleurothallis poasensis Ames = **P. dolichopus**
Pleurothallis racemosa (Barb.Rodr.) Krzl. = **P. acuminata**
Pleurothallis ramulosa Lindl. .....Fig. 21.
Pleurothallis regalis Luer.....Fig. 22.
Pleurothallis rubens Lindl. .....Fig. 23.
Pleurothallis rubens var. *latifolia* Cogn. = **P. rubens**
Pleurothallis rubens var. *longifolia* Cogn. = **P. rubens**
Pleurothallis scariosa (La Llave) Lindl. .....Fig. 24.
Pleurothallis schlimii Luer.....Fig. 25.
Pleurothallis sclerophylla Lindl. .....Fig. 26.
Pleurothallis soratana Rchb.f. .....Fig. 27.
Pleurothallis spathilabia Schltr. .....Fig. 28.
Pleurothallis spathuliformis Luer & Vásquez.....Fig. 29.
Pleurothallis stenoglossa Pabst = **P. citrina**
Pleurothallis stenopetala Lodd. ex Lindl. = **P. sclerophylla**
Pleurothallis stenophylla Lehm. & Krzl. .....Fig. 30.
Pleurothallis superposita Schltr. = **P. ramulosa**
Pleurothallis tenuifolia C.Schweinf. = **P. acuminata**
Pleurothallis tenuifolia var. *longisepala* = **P. lagarophyta**
Pleurothallis triura Schltr. = **P. sclerophylla**
Pleurothallis unduavica Luer & Vásquez.....Fig. 31.
Pleurothallis urosepala Lehm. & Krzl. = **P. sclerophylla**
Pleurothallis vasquezii Luer .....Fig. 32.

KEY TO THE SPECIES OF SUBGENUS *ACUMINATIA*

1 Petals obtuse to rounded; lip narrowly winged (sect. *Acuminatae*).....2
1' Petals narrowly acute to acuminate; column deeply winged (sect. *Alatae*).....30

2 Plant long-repent, the rhizome 3-5 cm long between ramicauls.....*P. soratana*
2' Plant shortly repent or caespitose.....3

3 Ramicauls prolific.....4
3' Ramicauls not prolific.....5

4 Leaves elliptical; sepals long-attenuate.....*P. ramulosa*
4' Leaves broadly elliptical-oblong; sepals acute.....*P. anderssonii*

5 Mature leaves less than 1 cm wide.....6
5' Mature leaves more than 1 cm wide.....9

6 Sepals ca. 20 mm long.....*P. lagarophyta*
6' Sepals less than 14 mm long.....7

7 Sepals delicate, 6-9 mm long.....*P. dimidia*
7' Sepals 10-14 mm long.....8

8 Sepals narrowly oblong; lip with tall, marginal calli below the middle.....*P. schlimii*
8' Sepals narrowly ovate; lip with low calli along middle third.....*P. stenophylla*

9 Plant descending with curved leaves; raceme half as long as the leaf...*P. vasquezii*
9' Plant erect; raceme as long as or longer than the leaf.....10

10 Lip with midline callus below the middle.....11
10' Lip without a midline callus.....12

11 Lip with midline crest below the middle.....*P. mediocarinata*
11' Lip with midline callus smooth.....*P. candida*

12 Lip with tall, marginal lamellae below the middle.....*P. schlimii*
12' Lip with a median pair of calli.....13

13 Lip not arcuate, with tall lobes at the middle.....*P. maguirei*
13' Lip arcuate with low lobes at the middle.....14

14 Leaf narrowly oblong.....15
14' Leaf broadly elliptical.....16

15 Sepals yellow to orange, more than 1 cm long.....*P. acuminata*
15 Sepals greenish white, delicate, 6-7 mm long.....*P. dimidia*

16 Sepals bright orange.....*P. jesupiorum*
16' Sepals yellow above the middle, purple below the middle.....*P. ariasii*

17 Lip with the apex dilated, rounded, smooth.....*P. spathuliformis*
17' Lip not with the apex dilated and round.....18

18 Lip with erect, subacute lobes below the middle.....*P. concinna*
18' Lip without erect, subacute lobes.....19

19 Lip with marginal, winglike lobes below the middle.....20
19' Lip without marginal, winglike lobes.....21

20 Petals minutely erose.....*P. unduavica*
20' Petals entire.....*P. coripatae*

21 Petals proportionately large, 2/3 as long as the sepals.....*P. asperilinguis*
21' Petals not proportionately large.....22

22 Sepals filiform-attenuate.....23
22' Sepals not filiform-attenuate.....24

23 Lip with a tall carina below the middle.....*P. sclerophylla*
23' Lip with 3 carinae.....*P. dolichopus*

24 Lip with erect margins below the middle, without calli.....25
24' Lip with 1 to 3 calli.....26

25 Column with an elongated beak.....*P. rubens*
25' Column without an elongated beak.....*P. meridana*

26 Lip with 1 tall callus below the middle, the apex coarsely verrucose.....
.....*P. papuligera*
26' Lip with 2 or 3 longitudinal calli.....27

27 Lip with 2 parallel calli.....28
27' Lip with 3 parallel calli.....29

28 Sepals acuminate; lip oblong.....*P. acuminata*
28' Sepals acute, not acuminate; lip short, broadly pyriform.....*P. spathilabia*

29 Lip with 3 calli above the middle.....*P. scariosa*
29' Lip with 3 calli below the middle.....*P. regalis*

30 Rhizome shortly repent, the rhizome 5-10 mm long between ramicauls; racemes short, few-flowered.....*P. obovata*
30' Plant caespitose, or rhizome 2-3 mm long between ramicauls.....31

31 Leaves thick; sepals thickly carinate, not acuminate.....*P. carnosifolia*
31' Leaves carinate; sepals membranous, acuminate.....32

32 Leaves less than 5 mm wide; lip with 2 low carinae.....*P. gracilenta*
32' Leaves more than 5 mm wide; lip shallowly sulcate.....33

33 Ramicauls 3-5 cm long; leaf ca. 1 cm wide.....*P. citrina*
33' Ramicauls 7-15 cm long; leaf 2.5-3 cm wide.....*P. angustilabia*

Pleurothallis acuminata (H.B.K.) Lindl., Edwards' Bot. Reg. 28: misc. 70, 1842.

Bas.: *Dendrobium acuminatum* H.B.K., Nov. Gen. Sp. 1: 357, 1816.
Ety.: From the Latin *acuminatum*, "acuminate," referring to the shape of the sepals.

Syn.: *Specklinia acuminata* (H.B.K.) Lindl., Edwards' Bot. Reg. 21: sub t. 1797, 1835.

Syn.: *Pleurothallis aurea* Lindl., Ann. Mag. Nat. Hist. 12: 397, 1843.
Ety.: From the Latin *aureus*, "orange," referring to the color of the flowers.

Syn.: *Anathallis racemosa* Barb. Rodr., Gen. Spec. Orch. Pl. 1: 24, 1877.
Ety.: From the Latin *racemosus*, "with racemes," referring to the inflorescence.

Syn.: *Humboldtia acuminata* (H.B.K.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Humboldtia aurea* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis racemosa* (Barb. Rodr.) Cogn., Fl. Bras. (3)4: 554, 1896.

Syn.: *Pleurothallis nigro-hirsuta* Kraenzl., Repert. Spec. Nov. Regni Veg. 1: 91, 1905.
Ety.: From the Latin *nigro-hirsutus*, "with black hairs," no doubt the black, fungal hyphae so commonly seen on these species.

Syn.: *Pleurothallis brittonii* Rolfe, Bull. N.Y. Bot. Gard. 4: 449, 1907.
Ety.: Named in honor of Nathaniel Lord Britton, noted contemporary botanist.

Syn.: *Pleurothallis ochroleuca* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 108, 1920.
Ety.: From the Greek *ochroleucos*, "yellowish white," referring to the color of the flowers.

Syn.: *Pleurothallis tenuifolia* C.Schweinf., Bot. Mus. Leafl. 15: 102, 1951.
Ety.: From the Latin *tenuifolius*, "thin-leaved," referring to the foliage.

Syn.: *Pleurothallis angustipetala* C.Schweinf., Bot. Mus. Leafl. 16: 45, 1953.
Ety.: Ety.: From the Latin *angustipetalus*, "with narrow petals," referring to the petals.

Plant small to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender to stout, 5-16 cm long, with a tubular sheath below the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 5-11 cm long, 1-2.5 cm wide, narrowly cuneate below into the petiole 0.5-1.5 cm long. **Inflorescence** a loose, subsecund, simultaneously several- to many-flowered raceme, 10-20 cm long including the peduncle 1-5 cm long, subtended by a spathe 7-12 mm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts 3-5 mm long; pedicels 3-5 mm long; ovary 2-4 mm long; **sepals** yellow to green, rarely whitish, glabrous externally, shortly to coarsely pubescent within, subcarinate, narrowly ovate, acute to narrowly obtuse, acuminate, the dorsal sepal 10-17 mm long, 2-3.25 mm wide, 3-veined, the lateral sepals free, oblique, forming a conspicuous mentum below the column-foot, 10-17 mm long, 2-3.25 mm wide, 3-veined; **petals** translucent yellow or green, oblong-obovate, obtuse, 4-6 mm long, 1.75-2 mm wide, carinate externally along the midvein, with a lesser vein on either side; **lip** yellow or green, oblong to oblong-obovate, arcuate, 4-6 mm long expanded, 1-2 mm wide, the apex obtuse to round, the disc with a pair of longitudinal calli from the lower third onto the outer third where they often break up into minute verrucae, sometimes with the midvein thickened, the base subtruncate, hinged to the column-foot; **column** semiterete, longitudinally winged, 3-4 mm long, the foot thick, 1-2 mm long, the anther and the stigma ventral.

PERU: **Amazonas**: Jaen de Bracamoros, near Pomahuaca, 1801, *Humboldt & Bonpland s.n.* (Holotype: P), C. Luer illustr. 15274. **Junín**: Tarma, mountain west of Huacapistana, alt. 2600-3000 m, *A. Weberbauer 2098* (holotype of *P. nigro-hirsuta* destroyed at B, photo at AMES); Tarma, Agua Dulce, alt. 2000 m, 8 Mar. 1948, *F. Woytkowski 35432* (holotype of *P. tenuifolia*: UC; isotype: AMES), C. Luer illustr. 19216. **Paucartambo**: Cuzco, Pillahuata, alt. 3200 m, 11 Dec. 1942, *C. Vargas 3006a* (holotype of *P. angustipetala*: AMES); same locality, alt. 2800 m, 25 Jan. 1945, *C. Vargas 4956* (AMES). **Puno**: Carabaya, Ollachaa, alt. 2500 m, 30 Dec. 1947, *C. Vargas 6941* (AMES, CUZ). **Cuzco**: Urubamba, Machu Picchu, alt. 2300 m, 4 Feb. 1967, *C. Vargas C. 18850* (AMES, CUZ).
BOLIVIA: **La Paz**: Nor Yungas, *M. Bang 1818* (holotype of *P. brittonii*: K; isotypes: AMES, M, US).
BRAZIL: **Minas Geraës**: near Jaguary, May, *B. Rodrigues s.n.* (holotype of *P. racemosa*: illustr. by Barbossa Rodriguez); near Caldas, Feb. 1878, *Regnell III 1132* (BR, S, W).
ECUADOR: **Cotopaxi**: along Río Pilalo between Quevedo and Latacunga, alt. 1200-1300 m, 7 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 3116* (AAU). **Guayas**: east of Manglar Alto, alt. ca. 500 m, 3 Aug. 1941, *O. Haught 3107* (US). **Imbabura**: west of Otavalo, alt. 3000 m, 7 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 3887* (SEL); Selva Alegre, alt. 2850 m, *C. Luer, S. Dalström & T. Höijer 9988* (SEL). **Morona-Santiago**: between San Juan and Gualaceo, alt. 1850 m, 28 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10992* (MO). **Azuay**: Paramo de Zaraguro and Cerro Pulla, alt. 2600-2900 m, *F.C. Lehmann 6927* (AMES, K); south of Cuenca, alt. 9,500 ft., 3 Oct. 1944, *I.L. Wiggins 10853* (AMES, US). **Loja**: Nudo de Sabanilla above Yangana, alt. 2500 m, 3 Apr. 1985, *G. Harling & L. Andersson 23618* (GB); same locality, alt. 2900 m, 8 Apr. 1989, *J.E. Madsen 85926, 85953* (AAU, QCA); ; Altos de Numbala

east of Yangana, alt. 2500-2900 m, May 1985, *D. D'Alessandro 399* (MO). **Zamora-Chinchipe**: south of Yangana, alt. 2250 m, 11 May 1981, *C. Luer, J. Luer & A. Hirtz 6178* (SEL); Cajanuma Range, south of Loja, alt. 2750 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10738* (MO); Cachaco, south of Yangana, alt. 2450 m, 24 July 1985, *C.H. Dodson, A. Embree & D. D'Alessandro 16026* (MO); between Loja and Zamora, alt. 2750 m, 20 Feb. 1986, *C. Luer, J. Luer, A. Hirtz & A. Embree 11975* (MO); Quebrada Honda, alt. 2200 m, 27 Mar. 1986, *D. D'Alessandro 561* (MO); Cachiyacu, south of Yangana, alt. 2250 m, 7 May 1986, *D. D'Alessandro 651* (MO); Río Yambala upriver from Vilcabamba, alt. 1650 m, 10 Apr. 1986, *D. D'Alessandro 520* (MO); above San Pedro de Vilcabamba, alt. 2400 m, 23 Apr. 1986, *D. D'Alessandro 634* (MO) Quichara, alt. 6,000 ft., June 1865, *R. Pierce s.n.* (K).
COLOMBIA: **Santander del Norte**: between Abrego and Las Jurisdicciones, alt. 3440-3750 m, 22 May 1969, *H. Garcia-Barriga & J. Jaramillo 19885* (AMES, COL); Alto de San Francisco, alt. 2850 m, 11 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10265* (MO). **Santander**: road to Landazuri, alt. 2150 m, 4 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10127*. **Cundinamarca**: El Chocó above Bogotá, alt. 10,000 ft., 11 Oct. 1946, *M.B. Foster, R. Jaramillo & J. Idrobo 1847* (AMES); Usaquén near Bogotá, alt. 2700-3000 m, 21 Nov. 1943, *M. Schneider 93* (AMES, S); Quebrada del Chicó, alt. 2800 m, 4 Oct. 1944, *M. Schneider 178* (AMES, S); Quebrada El Chicó, alt. 2750-2800 m, 4 June 1944, *M. Schneider 258* (AMES, S); San Cayetano, Hda. Portugal, alt. 2870 m, 18 Nov. 1972, *A.M. Cleef 6569* (AAU, COL). **Antioquia**: Tuza, alt. 1800-2300 m, *F.C. Lehmann 6092* (AMES, K); Tuza mines, La Ceja, *F.C. Lehmann s.n.. B.T. 321* (K). La Union, alt. 2300 m, collected 1990 and cultivated at Colomborquídeas by L. de Posada, 27 Dec. 1992, *R. Escobar 5097* (MO). **Risaralda**: Sta. Rosa de Cabal, alt. 1980 m, Nov. 1986, *J. Wolf 1117* (CO, MO). **Valle del Cauca**: Farallones de Cali, alt. 3100 m, 4 Jan. 1977, *D. Hartman 617* (CUVC); west of Cali, alt. 1000 m, cultivated at Orquídeas del Valle, 15 Mar. 1997, *C. Luer 18433* (MO). **Cauca**: without collection data, *M. Madero s.n.* (holotype of *P. ochroleuca*: destroyed at B); Alto Obispo, near Volcán de Puracé, alt. 4,000 ft., 20 May 1878, *F.C. Lehmann s.n.* (W); Páramo de Moras, alt. 3000 m, 3 Mar. 1883, *F.C. Lehmann 2698* (BR, K); Volcán de Sotara, alt. 3000-3400 m, *F.C. Lehmann 6139* (K); San Antonio, 1 July 1922, *F.W. Pennell 7588* (AMES, NY, US); El Tambo, near Munchique, alt. 2400 m, 11 Nov. 1936, *K. von Sneidern 1093* (S). above Popayán, Capilla, *F.C. Lehmann s.n., B.T. 323* (AMES, K).
VENEZUELA: **Mérida**: alt. 10,000 ft., 1842, *J. Linden 634* (holotype of *P. aurea*: K; isotypes: LE, W); Truxillo, Agua Obispo, alt. 6,000-7,000 ft., 1846, *L. Schlim 733* (BR, LE, W). **Táchira** Páramo de Tamá, alt. 3045-3475 m, *J.A. Steyermark 57396* (AMES, VEN).

This relatively frequent species is variable in size, both vegetatively and florally, in its wide distribution through the Andes from Venezuela into Brazil. It is represented by numerous variations, but always distinguished by the ramicauls more or less equal in length to the elliptical or narrowly elliptical, obtuse leaves, and elongated racemes of nearly simultaneous flowers. *Pleurothallis tenuifolia* differs only by the narrow leaves, and *P. angustipetala* is only slightly smaller. *Pleurothallis aurea, P. brittonii, P. nigro-hirsuta* and *P. ochroleuca* are indistinguishable.

Several variations are recognized as closely allied species. The very narrow leaves of *P. stenophylla* and *P. lagarophyta*, seem sufficiently distinct, although the flowers are very near those of *P. acuminata*. A small, very similar taxon with delicate, smaller flowers is recognized as *P. dimidia*. However, it is little more than a small floral and vegetative variation.

The narrowly ovate, acuminate sepals of *P. acuminata* are yellowish and variously pubescent within. They vary in length from 10 to 17 millimeters. Externally they are often covered with a loose web of black hyphae. No doubt the black hyphae on the ramicauls, sheaths and flowers led Kränzlin to describe *P. nigro-hirsuta*. This infection is also frequently seen on other related species, as well as in other pleurothallid genera.

The obtuse petals are carinate externally along the midvein. A faint additional vein flanks the midvein to either side. The lip is oblong, arcuate, and widest mear the middle, with a pair of longitudinal calli through the middle third that disappear near the apex in minute, often faint verrucae which are sometimes lacking. The midvein is sometimes thickened as a low, midline callus.

Pleurothallis anderssonii Luer, Lindleyana 11: 145, 1996.

Ety.: Named in honor of Dr. Lennart Andersson of Göteburg, Sweden, co-discoverer of this species.

Plant medium in size to large, epiphytic, scandent; roots slender. Ramicauls prolific, producing another ramicaul at the apex, slender, erect, 4-17 cm long, with a tubular sheath near the middle and another sheath at the base. **Leaf** erect, coriaceous, broadly elliptical, obtuse, the blade 4-6 cm long, 2.5-3.5 cm wide, the rounded base contracted into a petiole 1 cm long. **Inflorescence** an erect, strict, subcongested, distichous, simultaneously many-flowered raceme 10-22 cm long including the peduncle 2-4 cm long, from a narrow spathe 10-14 mm long; floral bracts oblique, acute, 5 mm long; pedicel 4-5 mm long; ovary 3 mm long; **sepals** yellow, minutely ciliate, subcarinate, the dorsal sepal elliptical-ovate, sharply acute, 9 mm long, 2.5 mm wide, 3-veined, barely connate to the lateral sepals, the lateral sepals ovate, oblique, sharply acute, 9 mm long, 2.25 mm wide, 3-veined, barely connate at the base; **petals** translucent yellow, oblong, rounded or subtruncate at the apex, 3.75 mm long, 2 mm wide, 1-veined, the vein thickened externally; **lip** yellow, oblong-obovate, 5 mm long, 2 mm wide, the apex rounded, thickened below the middle with the margins erect, broadly rounded, the disc with the 3 veins more or less thickened, the base truncate, hinged to the column-foot; **column** terete, 2.5 mm long, the foot 1.5 mm long, the anther and the stigma ventral.

ECUADOR: **Loja**: between Celica and Zapotilla, alt. 1800-1900 m, 10 Apr. 1980, *G. Harling & L. Andersson 18113* (Holotype: GB; Isotype: AMES); same collection data, *G. Harling & L. Andersson 18111* (GB); estribaciones de Celica, northeast of Guachanamá, dry secondary scrub, alt. 2800 m, 21 Feb. 1985, *G. Harling & L. Andersson 22351* (AMES, GB); Bosque "El Tundo," towards finca Acroiris, alt. 1750 m, 11 Apr. 1997, *B.B. Klitgaard, P. Lozano, T. Delgado & H. Aleyandro 476* (K, LOJA).

This species is apparently endemic in one area of southern Ecuador where it has been collected by the same pair of collectors five years apart, but so far by no one else to my knowledge. The ramicauls are prolific, and the leaves are broadly elliptical and obtuse. The flowers are produced in an erect, elongate, multiflowered raceme. The sepals are sharply acute, and the petals are obtuse with the single vein prominent externally. The lip is oblong and thickened below the middle with erect, broadly rounded margins.

Pleurothallis angustilabia Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 71, 1921.

Ety.: From the Latin *angustilabius*, "narrow-lipped," referring to the labellum.

Syn.: *Pleurothallis citrina* var. *elliptica* C.Schweinf., Bot. Mus. Leafl. 16: 9, 1953.

Ety.: From the Latin *ellipticus*, "elliptic," referring to the leaves.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender to stout, 6-15 cm long, with a tubular sheath near the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 5-11 cm long, 1.5-2.8 cm wide, narrowly cuneate below into the petiole 0.5-1.5 cm long. **Inflorescence** a loose, secund, simultaneously several-flowered raceme, 4-12 cm long including the peduncle 2-3 cm long, subtended by a spathe 5-7 mm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts 3-4 mm long; pedicels 3-4 mm long; ovary 1.5 mm long; **sepals** pale yellow to pale green, glabrous, subcarinate, narrowly ovate, acute, oblong-acuminate, the dorsal sepal 10 mm long, 1.75-2.5 mm wide, 3-veined, the lateral sepals free, oblique, forming a small mentum below the column-foot, 9-10 mm long, 1.75-2 mm wide, 3-veined; **petals** greenish white, narrowly ovate, acute, narrowly long-acuminate, microscopically erose near the middle, 6-7 mm long, 0.8-1 mm wide; **lip** greenish white, oblong-ovate, narrowed toward the apex, obtuse, 2.75-3.25 mm long, 1-1.25 mm wide, the disc shallowly sulcate, the base subtruncate, hinged to the column-foot; **column** stout, winged, 2-2.5 mm long, the foot 1.5 mm long, the anther and the stigma ventral.

PERU: **Amazonas**: between Panti and Rocchas, alt. 2000 m, Mar. 1913, *A. Weberbauer 6540* (Holotype of *P. angustilabia* destroyed at B; Lectotype here designated: AMES, Isolectotype: F); Chachapoyas, Cerros Calla Calla above Leimebamba, alt. 2950 m, 28 Mar. 1964, *P.C. Hutchison & D.E. Bennett 4774* (AMES, F, NY, UC, US, USM); **Cuzco**: Urubamba, Machu-Picchu, alt. 2100 m, 15 Apr. 1943, *C. Vargas 3344* (AMES); same area, alt. 2250 m, 11 Apr. 1963, *C. Vargas 14370* (AMES); between Pisi and Peñas, alt. 3400 m, 6 Jan. 1964, *C. Vargas 15014* (AMES, CUZ). **Huánuco**: dry hills above Huánuco, alt. 12,000 ft., Apr. 1863, *R. Pierce 45* (K). **Puno**: Carabaya, below Ollachea, alt. 2500 m, 30 Dec. 1947, *C. Vargas 6936* (holotype of var. *elliptica*: AMES); Carabaya, Valle de San Gabón, alt. 2000-2600 m, 8 Feb. 1967, *C. Vargas 18970* (AMES, CUZ).

BOLIVIA: **La Paz**: Murillo, Río Zongo, alt. 2600 m, 27 Jan. 1980, *C. Luer, J. Luer & R. Vásquez 4969* (SEL); same area, alt. 2650 m, 30 Jan. 1988, *C. Luer, J. Luer et al. 12973* (MO); Sud Yungas, between

Coroico and La Paz, alt. 2800 m, cultivated by Dino Menato, 9 Feb. 1980, *C. Luer 5193* (SEL); along Río La Paz toward Asunto, alt. 900 m, 25 Mar. 1984, *C. Luer, J. Luer & R. Vásquez 10026* (MO).
COLUMBIA: **Nariño**: Pasto, La Cruz and Río Iledyo, alt. 2000-2400 m, *F.C. Lehmann 6288* (K); about Chacapamba and Meneces near Pasto, alt. 1800-2500 m, *F.C. Lehmann B.T. 317* (K); **Cauca**: around Vangobío and Palacé, highlands of Popayán, alt. 1700-2000 m, Jan. 1886, *F.C. Lehmann 9076* (AMES, K); highlands of Popayán, alt. 1600-2200 m, *F.C. Lehmann s.n., H.K. 115* (K); Capilla, *F.C. Lehmann s.n., B.T. 313* (AMES, K).
VENEZUELA: **Lara**: Selva ariba de Senare, alt. ca. 1500 m, Aug. 1959, *L. Aristeguieta 3961* (AMES, VEN).
ECUADOR: **Loja**: upriver from Vilcabamba, alt. 2000-2400 m, May 1985, *D. D'Alessandro 339* (MO); above San Pedro de Vilcabamba, alt. 2400 m, 23 Apr. 1986, *D. D'Alessandro 627* (MO).

This species occurs within the distribution of both *P. citrina* and *P. obovata*, to which it is closely allied. From *P. obovata*, *P. angustilabia*, is easily distinguished by the caespitose habit. From both the preceding two taxa, this species is distinguished by wider leaves, longer, looser racemes and longer sepals. Although there are some intermediate forms, *P. angustilabia* is usually readily identifiable.

Pleurothallis ariasii Luer & Hirtz, Lindleyana 12: 42, 1997.

Ety.: Named in honor of Manuel Arias, of Lima, Peru, who collected this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4-5 cm long, with 2-3 blackish, tubular sheaths below the middle and at the base. **Leaf** erect, coriaceous, elliptical, obtuse to rounded at the apex, 3.5-4.5 cm long, 1.8-2 cm wide, cuneate below into a petiole 5 mm long. **Inflorescence** a loose, secund, simultaneously several-flowered raceme, 6-7 cm long including the peduncle 1-2 cm long, subtended by a narrow spathe 5 mm long from an annulus below the apex of the ramicaul; floral bracts 2 mm long; pedicels 2 mm long; ovary 1.5 mm long; **sepals** yellow above the middle, purple below the middle, spiculate-pubescent within, oblong, obtuse, the dorsal sepal 10 mm long, 1.5 mm wide, 3-veined, the lateral sepals free, oblique, forming a small mentum below the column-foot, 10 mm long, 1.5 mm wide, 3-veined; **petals** translucent purple, oblong, rounded at the apex, 2 mm long, 1 mm wide, with an verruculose carina externally along the midvein, with a faint vein to either side; **lip** purple, arcuate, oblong-obovate, 2.5 mm long, 0.9 mm wide, the apex rounded, the sides erect below the middle, the disc with a pair of longitudinal, subverrucose calli above the middle, terminating near the apex into a low verrucosities, the base narrowly subtruncate, delicately hinged to the tip of the column-foot; **column** stout, 1.75 mm long, longitudinally winged, the foot 1 mm long, the anther, rostellum and stigma ventral.

PERU: Without collection data, received from M. Arias, flowered in cultivation in Quito by *A. Hirtz 6222* (Holotype: MO), C. Luer illustr. 17812.

This species and *P. jesupiorum* are closely allied, but *P. ariasii* is distinguished by the broader leaves, and twice longer, narrowly oblong sepals that are spiculate-pubescent within. Instead of bright orange, the sepals of *P. ariasii* are yellow above the middle and purple below the middle. Except for color, the petals and lips of the two species are similar.

Pleurothallis asperilinguis Rchb.f. & Warsc., Bonplandia 2: 114, 1854.

Ety.: From the Latin *asperilinguis*, "rough-tongued," referring to the asperous apex of the labellum.

Syn.: *Humboldtia asperilinguis* (Rchb.f. & Warsz.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis aurea* var. *asperilinguis* (Rchb.f. & Warsz.) Foldats, Act. Biol. Venez. 2: 373, 1959.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-6 cm long, with a tubular sheath below the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, shortly petiolate, 5 cm long, 1.2 cm wide, cuneate below into the indistinctly petiolate base. **Inflorescence** a loose, distichous, simultaneously several-flowered raceme, 7-10 cm long including the peduncle ca. 2 cm long, subtended by a spathe 3-4 mm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts 3-4 mm long; pedicels 3 mm long; ovary 3.5 mm long; **sepals** yellow, glabrous externally, shortly pubescent within, subcarinate, the dorsal sepal elliptical, subacute, 11.5 mm long, 4.5 mm wide, 3-veined, the lateral sepals free, oblong, oblique, subacute, forming a mentum below the column-foot, 9.5 mm long, 3.5 mm wide, 3-veined; **petals** translucent yellow, obovate, obtuse, 7 mm long, 3 mm wide, thickened at thr apex externally, especially along the midvein, with a lesser vein on either side; **lip** obovate, slightly arcuate, 4.25 mm long, 1.25 mm wide, the

apex obtuse, minutely erose, the disc shallowly concave between a pair of longitudinal calli from below the middle onto the distal third where they unite into minute, spiculate verrucae, the base narrowly truncate, hinged to the column-foot; **column** semiterete, slender, 4 mm long, the foot 2 mm long, the anther and the stigma ventral.

PERU: without locality, *J. von R. Warscewicz 5202* (holotype of *P. asperilinguis*: W), C. Luer illustr. 19068.

I know of no subsequent collection of this species. All collections identified as *P. asperilinguis* apparently are variations of the variable *P. acuminata*. The flowers of *P. asperilinguis* are distinguished from all its relatives by broad, non-acuminate sepals; proportionately large, broadly obtuse petals two-thirds as long as the sepals; and a small lip half the length of the petals. The lip is narrowly obovate with the disc shallowly concave between a pair of calli above the middle that merge into a spiculate-verrucose callus near the apical margin.

Pleurothallis candida Luer & Hirtz, Lindleyana 12: 42, 1997.

Ety.: From the Latin *candidus*, "white," referring to the flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3.5-5 cm long, with 2-3 blackish, tubular sheaths below the middle and at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse at the apex, 4-6 cm long with a petiole nearly 1 cm long, 1.5-1.8 cm wide, cuneate below into the a petiole. **Inflorescence** a congested, secund, simultaneously many-flowered raceme, 6-11 cm long including the peduncle 2-3 cm long, subtended by a narrow spathe 5-7 mm long from an annulus below the apex of the ramicaul; floral bracts 2.5 mm long; pedicels 2 mm long; ovary 2.5 mm long; **sepals** white, ciliate, oblong, carinate, obtuse, the dorsal sepal 7.5-10 mm long, 2 mm wide, 3-veined, the lateral sepals barely oblique, forming an indistinct mentum with the column-foot, 8-10 mm long, 2 mm wide, 3-veined, connate 0.5 mm; **petals** translucent white, carinate, elliptical, obtuse, 3.5 mm long, 1 mm wide; **lip** white, oblong-ovate, 3.5 mm long, 1 mm wide, the apex rounded, minutely verrucose, the sides erect and broadly rounded below the middle, the disc with a longitudinal callus below the middle, the base subtruncate, delicately hinged to the tip of the column-foot; **column** stout, 2 mm long, narrowly winged, the foot 0.5 mm long, the anther, rostellum and stigma ventral.

PERU: **Puno**: Sandia, alt. 2500 m, Nov. 1995, *A. Hirtz 6262* (Holotype: MO). **Cuzco**: Urubamba, between Piri and Peñas, alt. 3400 m, 6 Jan. 1964, *C. Vargas 15015* (AMES, CUZ); Machu Picchu, alt. 2350 m, 29 Nov. 1966, *C. Vargas 18366* (AMES, CUZ).

This species is closely allied to *P. acuminata* and its relatives, but it is distinguished from them by the congested, secund raceme of white flowers with oblong, obtuse sepals that are not at all acuminate. The lip also is distinguished by the erect sides and midline callus instead of the arcuate lip with a pair of longitudinal calli as seen in *P. acuminata*.

Pleurothallis carnosifolia C.Schweinf., Bot. Mus. Leafl. 15: 87, 1951.

Ety.: From the Latin *carnosifolius*, "fleshy-leaved," referring to the thick leaves.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-9 cm long, with a tubular sheath near the middle and 2-3 other sheaths at the base. **Leaf** erect, thickly coriaceous, narrowly elliptical, subacute to obtuse, indistinctly petiolate, 5-6 cm long, 0.8-1.1 cm wide, narrowly cuneate below to the base. **Inflorescence** a loose, secund, simultaneously several-flowered raceme, 3-5 cm long including the peduncle ca. 1 cm long, subtended by a spathe 5 mm long, from an annulus near the base of the leaf; floral bracts 3 mm long; pedicels 1.5-2 mm long; ovary 1.5 mm long; **sepals** yellow, glabrous, carinate, ovate, acute, thickened toward the apices, the dorsal sepal 6 mm long, 2 mm wide, 3-veined, the lateral sepals free, oblique, forming a shallow mentum below the column-foot, 5 mm long, 1.75 mm wide, 2-veined; **petals** translucent yellow, narrowly ovate, oblique, acute, 4 mm long, 1.4 mm wide; **lip** yellow, thick, obovate, lightly arcuate, 2 mm long, 1 mm wide, the apex obtuse to round, the disc shallowly sulcate between a pair of low, longitudinal calli, the base subtruncate, hinged to the column-foot; **column** stout, winged, 2 mm long, the foot 1 mm long, the anther and the stigma ventral.

PERU: **Cuzco**: Urubamba, Salapunco, lithophytic, alt. 2400 m, 25 Mar. 1946, *C. Vargas 5989* (Holotype: AMES; Isotype: CUZ). **Junín**: Tarma, lithophytic between Tarma and La Merced, near Carpapata, alt. 2400 m, 28 Jan. 1984, *D.N. Smith & J. Canne 5920* (MO, NY), C. Luer illustr. 17077.

This species, known so far only from Peru, differs from those taxa that are closely related to *P. citrina* by the narrow, thickly fleshy leaves and a several-flowered raceme about as long. The flowers are yellow with the conspicuously carinate sepals also fleshy, especially above the middle. The petals are ovate and sharply acute. The lip is obovate, thick and shallowly sulcate.

Pleurothallis citrina Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 103, 1920.

Ety.: From the Latin *citrinus*, "lemon yellow," referring to the color of the flowers.

Syn.: *Pleurothallis brachyantha* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 44, 1924.

Ety.: From the Greek *brachyanthos*, "short-flowered," referring to the inflorescence.

Syn.: *Pleurothallis angustilabia* Hoehne & Schltr., Arch. Bot. São Paulo 1: 207, 1926, not Schltr. 1921.

Ety.: From the Latin *angustilabius*, "narrow-lipped," referring to the labellum.

Syn.: *Pleurothallis stenoglossa* Pabst, Arquiv. Jard. Bot. Rio de Janeiro 14: 19, 1956, nom. nov. for *P. angustilabia* 1921.

Ety.: From the Greek *stenoglossa*, "narrow tongue," referring to the labellum.

Syn.: *Pleurothallis guentheri* Schltr., Repert. Spec. Nov. Regni Veg. 27: 51, 1929.

Ety.: Named for Ernesto Guenther who collected this species.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-10 cm long, with a tubular sheath near the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, subpetiolate, 3-6 cm long, 0.5-1 cm wide, narrowly cuneate below into a indistinct petiole 1-1.5 cm long. **Inflorescence** a loose, subsecund, simultaneously few-flowered raceme, 2-4 cm long including the peduncle ca. 1 cm long, subtended by a spathe 3 mm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts 2 mm long; pedicels 2-3 mm long; ovary 1 mm long; **sepals** pale yellow to pale green, glabrous, subcarinate, the dorsal sepal narrowly ovate, acute, narrowly acuminate, thickened, 6-8 mm long, 1.25-2 mm wide, 3-veined, the lateral sepals free to near the base, narrowly ovate, oblique, forming a small mentum below the column-foot, 6-8 mm long, 1-1.5 mm wide, 3-veined; **petals** translucent light yellow or green, narrowly ovate, acute, minutely serrulate near the middle, 4-5 mm long, 0.75-1.5 mm wide; **lip** yellow or green, oblong, 1.75-2.25 mm long, 0.5-0.8 mm wide, the apex round, the disc shallowly sulcate, the base subtruncate, hinged to the column-foot; **column** stout, broadly winged, 1.5 mm long, the foot thick, 0.5 mm long, the anther and the stigma ventral.

COLUMBIA: **Nariño**: Volcán de Pasto, around La Cruz and above La Piedra, alt. 2000-2400 m, undated, *F.C. Lehmann 6926* (Holotype: K, Isotype: LE); near Pasto, alt. 2400 m, Jan. 1921, *W. Hopp 21* (holotype of *P. brachyantha* destroyed at B); above Ricaurte, alt. 3000 m, 1 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4507* (SEL). **Cauca**: highlands of Popayán, alt. 1600-2200 m, *F.C. Lehmann s.n., H.K. 115* (K). **Antioquia**: Urrao, collected by E. Valencia, cultivated at Colomborquídeas, 9 July 1996, *C. Luer 17985* (MO)

PERU: **Puno**: Sandia, around Sandia, 2250 m, 5 Feb. 1964, *C. Vargas 15147* (AMES, CUZ). **Pasco**: Oxapampa, 31 Jan. 1979, *C. Luer & J. Luer 3845* (SEL).

BOLIVIA: **La Paz**: Larecaja, Sorata, *E. Guenther 6500* (holotype of *P. guentheri* destroyed at B; lectotype here designated: AMES; Isolectotype: US); Cerro Iminapi near Sorata, alt. 2700 m, 21 Jan. 1981, *C. Luer, J. Luer & R. Vásquez 5699* (SEL); same area, along Río Chinchine, alt. 2350 m, 17 Nov. 1992, *C. Luer. J. Luer, R. Vásquez, D. Ric, J. del Hierro & W. Teague 16428* (MO). **Cochabamba**: below Cocapata, alt. 2630 m, 5 Feb. 1997, *C. Luer, J. Luer, R. Vásquez, D. Ric & W. Teague 18397* (MO).

BRAZIL: **São Paulo**: Alto da Serra, 30 Sept. 1920, *F.C. Hoehne 4465* (holotype of *P. angustilabia*, 1926: SP; isotypes: HB, AMES). **Paraná**: Curitiba, Piraquara, Rio Irai, 12 Mar. 1971, *G. Hatschbach 26546* (K, MBM).

This species and *P. obovata* are allied with numerous intermediate forms. Hence, *P. citrina* is often treated as a synonym of *P. obovata*. However, when the extremes of this mixture are compared, I have no doubt that two species exist. Barbosa Rodrigues' *P. densiflora* seems intermediate. *Pleurothallis citrina* is distinguished by 1 to 3 erect, distantly flowered racemes that often reach beyond the middle of the leaf. The racemes of *P. obovata* are shorter, few-flowered, and often disheveled in appearance.

Pleurothallis concinna Luer & Vásquez, Rev. Soc. Bol. Bot. 3: 1999.

Ety.: From the Latin *concinnus*, "nice, elegant," referring to the appearance of the plant.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 7-11 cm long, with a tubular sheath below the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 8-11 cm long, 2-2.6 cm wide, cuneate below into the petiole 1.5 cm long. **Inflorescence** a loose, secund, simultaneously several- to many-flowered raceme, 15-23 cm long including the peduncle 4-5 cm long, subtended by a spathe 7 mm long, from an annulus 5 mm below the apex of the ramicaul; floral bracts 4 mm long; pedicels 1.5-2 mm long; ovary 2 mm long; **sepals** pale yellow-green, glabrous externally, shortly pubescent within, subcarinate, the dorsal sepal narrowly ovate, acute, attenuate, 13 mm long, 3 mm wide, 3-veined, the lateral sepals free, narrowly triangular, oblique, forming a small mentum below the column-foot, 13 mm long, 2.5 mm wide, 1-veined; **petals** translucent yellow, broadly oblong-obovate, rounded at the apex, 3.5 mm long, 2.25 mm wide, the midvein purple and carinate externally; **lip** green, suffused with purple, oblong-trilobed, 5 mm long, 1.25 mm wide, the lateral lobes obtuse, erect on basal third, the apical lobe oblong, obtuse, with serrate margins, with longitudinal, intramural lamellae running forward from the lateral lobes, and a midline callus between, the base truncate, hinged to the column-foot; **column** slender, cucullate, 3 mm long, the foot thick, 1 mm long, the anther and the stigma ventral.

BOLIVIA: **La Paz**: Nor Yungas, between Coroico and Chuspipata, alt. 1820 m, 27 Jan. 1983, *C. Luer, J. Luer & R. Vásquez 8614* (Holotype: SEL).

This species occurs in the mountainous valleys of the northeastern slopes of the Andes of central Bolivia. In habit, it is similar to *P. sclerophylla* with the long, many-flowered inflorescence far exceeding the elliptical leaf. The sepals are long and narrow and long-pubescent within, and the petals are short and rounded at the apex. The lip, however, is distinct with a thin, serrated margin above the middle, erect, lateral lobes below the middle, and three, longitudinal calli.

Pleurothallis coripatae Luer & Vásquez, Phytologia 46: 362, 1980.

Ety.: Named for Coripata, a community near where this species was first collected.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3.5-5 cm long, with a tubular sheath near the middle and 2-3 other sheaths about the base. **Leaf** erect, gray-green, thickly coriaceous without a visible midrib, elliptical, subacute to obtuse, petiolate, 5-6.5 cm long, 1.6-2 cm wide, narrowly cuneate below into the petiole 0.5-1 cm long. **Inflorescence** a subcongested, distichous, flexuous, simultaneously several-flowered raceme, 10-14 mm long including the peduncle 3-4 cm long, subtended by a spathe 1 cm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts 2-3 mm long; pedicels 1-1.5 mm long; ovary 2 mm long; **sepals** pale yellow-green, glabrous externally, cellular-papular within, subcarinate, narrowly ovate, acute, the dorsal sepal 8 mm long, 2 mm wide, 3-veined, the lateral sepals free, oblique, forming a shallow mentum below the column-foot, 8 mm long, 2 mm wide, 3-veined; **petals** translucent yellow, oblong-obovate, rounded at the apex, 3.5 mm long, 1.25 mm wide; **lip** yellow, marked with purple, oblong to oblong-subpandurate, 4 mm long, 1.5 mm wide, the apex expanded, broadly rounded, verrucose centrally, thickened below the isthmus with broadly rounded, erect, lamellate margins that form recesses at the subcordate base with the midline callus, the disc with a tall, midline lamella, the base hinged to the column-foot; **column** slender, speckled with red, the apex non-cucullate, 2 mm long, the foot 1 mm long, the anther and the stigma ventral.

BOLIVIA: **La Paz**: Nor Yungas, cloud forest between Coripata and Coroico, alt. 2000 m, 3 Feb. 1980, *C. Luer, J. Luer, R. Vásquez & R. Lara 5070* (Holotype: SEL).

This species, apparently endemic in north-central Bolivia, is related to the widely distributed *P. rubens*, but most closely allied to *P. unduavica*. The lips of all three are basically similar. From *P. rubens* it is distinguished by the column that lacks the protruding margin beyond the anther. From *P. unduavica* it is distinguished by entire petals and only one central lamella of the lip.

Pleurothallis dimidia Luer, sp. nov.

Ety.: From the Latin *dimidius*, "half the size," referring to the smaller habit and flowers.

Species haec *P. acuminatae* (H.B.K.) Lindl. similis, sed foliis ellipticis minoribus et floribus albo-virescentibus minoribus differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 3-6 cm long, with a tubular sheath near the middle and 2-3 other sheaths at the base. **Leaf** erect, thickly coriaceous, narrowly elliptical, subacute to obtuse, petiolate, 3-5 cm long, 0.8-1.3 wide, narrowly cuneate below into the petiole. **Inflorescence** a loose, subsecund, simultaneously several-flowered raceme, 4-8 cm long including the peduncle 1-2 cm long, subtended by a spathe 5-8 mm long, from an annulus 1-2 mm below the apex of the ramicaul; floral bracts 2 mm long; pedicels 2-3 mm long; ovary 1.75-2 mm long; **sepals** greenish white, glabrous extemally, minutely short-pubescent within, subcarinate, narrowly oblong-ovate, subacute, the dorsal sepal 6-9 mm long, 1.75-2 mm wide, 3-veined, the lateral sepals free, oblique, forming a mentum below the column-foot, 6-9 mm long, 1-1.5 mm wide, 3-veined; **petals** translucent white, oblong, obtuse, 2-2.5 mm long, 0.5-1 mm wide, obscurely 3-veined, carinate externally along the midvein; **lip** white, oblong, arcuate, 2.2-3 mm long, 0.6-1 mm wide, the apex obtuse to round, the microscopically verrucose and erose, the disc shallowly sulcate between a pair of longitudinal calli along the middle two-thirds of the lip, the base subtruncate, hinged to the column-foot; **column** slender, longitudinally winged, 1.75-2 mm long, the foot 1 mm long, the anther and the stigma ventral.

BOLIVIA: **La Paz** Inquisivi, Polea, west of Inquisivi, alt. 2400 m, 26 Nov. 1992, *C. Luer, J. Luer & R. Vásquez 16497* (Holotype: MO); Saavedra, below Charazani, alt. 2550, 19 Nov. 1992, *C. Luer, J. Luer, R. Vásquez et al. 16450* (MO). **Cochabamba**: Carrasco, Sehuencas, alt. 2100 m, 15 Nov. 1993, *P. Ibisch 93.1363* (MO).
PERU: *Cuzco*: Paucartambo, Pillawata, Paso del Aguila, alt. 2800 m, 4 Nov. 1965, *C. Vargas 16768* (AMES, CUZ). **Huánuco**: below Panao, alt. 2800 m, 7 Aug. 1980, *C. Luer, J. Luer, W. Königer, H. Königer & M. Arias 5315* (SEL).
COLOMBIA: **Magdalena**: Santa Marta, Hda. Cincinnati, alt. 7,100 ft., 2 Aug. 1946, *M.B. Foster, R. Foster & E. Smith 1332* (AMES). **Santander**: Páramo de las Puentes, oak forest above La Baja, alt. 3300-3400 m, 25-31 Jan. 1927, *E.P. Killip & A.C. Smith 18259* (AMES, NY, US).
VENEZUELA: **Táchira**: near Las Copas cliffs, headwaters of the Río Quinimarí, alt. 2400 m, Sept. 1972, *G.C.K. Dunsterville 1238*.

This species, widely distributed in the Andes from northern Colombia to central Bolivia, is very similar to the relatively common *P. acuminata*, but it is distinguished from the latter by the smaller habit and smaller, greenish white flowers. It had been considered merely a smaller variation, but populations of these plants occur sporadically within the distribution of the larger, yellow-flowered *P. acuminata*. The leaves are elliptical, about one centimeter wide, and surpassed by the raceme of small, delicate flowers with narrowly oblong sepals. Dunsterville's illustration erroneously identified as *P. asperilinguis* in *Venezuelan Orchids Illustrated* appears to be this species.

Pleurothallis dolichopus Schltr., Repert. Spec. Nov. Regni Veg. 10: 394, 1912.
Ety.: From the Greek *dolichopus*, "long-footed," referring to the elongated ramicaul.

Syn.: *Pleurothallis lamprophylla* Schltr., Repert. Spec. Nov. Regni Veg. 15: 205, 1918.
Ety.: From the Greek *lamprophylla*, "shiny leaf," referring to the foliage.

Syn.: *Pleurothallis dolichopus* var. *bradeorum* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 106, 1923.
Ety.: Named for the brothers Brade who collected this specimen.

Syn.: *Pleurothallis poasensis* Ames, Sched. Orch. 1: 10, 1922.
Ety.: Named for Volcán Poás where the specimen was collected.

Syn.: *Pleurothallis peregrina* Ames, Sched. Orch. 6: 67, 1923.
Ety.: From the Latin *peregrinus*, "foreign," referring to the lack of affinities.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 10-18 cm long, with a tubular sheath below the middle and 2 others at the base. **Leaf** erect, coriaceous, elliptical, obtuse, petiolate, 9-16 cm long, 2-3.4 cm wide, cuneate below into the slender petiole 1.5-2 cm long. **Inflorescence** a strict, erect, loosely, simultaneously many-flowered raceme, up to 18 cm or more long including the peduncle ca. 2 cm long, subtended by a spathe ca. 1 cm long, from a node 5-6 mm below the abscission layer; floral bracts tubular, oblique, 3-4 mm long; pedicels 3-5 mm long; ovary 3 mm long; **sepals** light yellow-green, pubescent within, subcarinate, free to the base, the dorsal sepal narrowly ovate, acute, long-acuminate, 10-20 mm long, 2 mm wide, 3-veined, the lateral sepals narrowly ovate, acute, long-acuminate, 10-20 mm long, 2-2.3 mm wide, 3-veined, forming a mentum below the column-foot; **petals** elliptical, subacute to obtuse, entire, 3 mm long, 1.3 mm wide, 1-veined, 3-veined, with the midvein purple-carinate extemally; **lip** rose, oblong, arcuate, 3 mm long, 1.3 mm wide, the apex rounded, minutely serrulate, with erect, broadly rounded sides on the lower half or two-thirds, the disc tricallous to near

the apex, with the lateral calli more or less merging into the elevated margins of the lip toward the base, the central carina longitudinal, verrucose, the base shortly subunguiculate, hinged to the column-foot; **column** semiterete, 2.5 mm long, the foot 1.5 mm long, the anther pointed, ventral, the rostellum and stigma ventral.

GUATEMALA: **Alta Verapaz**: between Cobán and Tactiç, alt. ca. 2000 m, Dec. 1907, *H. von Türckheim II, 2072* (holotype of *P. dolichopus* destroyed at B; lectotype here designated: AMES 23623; isolectotype: US); Cerro Mira Mundo, 30 Oct. 1976, cultivated by M. Dix, 14 Feb. 1981, *C. Luer 5949* (SEL); near Cobán, alt. 4400 ft., cultivated by O. Mittlestaedt at Vivero Verapaz, 13 Feb. 1990, *C. Luer 14595* (MO). **Quetzaltenango**, between Palohueci and Xuilpach, Apr. 1878, *Bernoulli & Cario 582* (holotype of *P. lamprophylla* destroyed at B; lectotype here designted: AMES 23637, illustr. of type); Chalisco, 1862, *Mssrs Salvin & Godman 40* (K). Without locality, Dec. 1865, *G. Bernoulli 259* (W).
MEXICO: **Chiapas**: Union Juárez, Volcán Tacaná, between Chiquihuite and paso del gato, alt. 2400 m, 29 Apr. 1987, *E.M. Martínez et al. 20495* (MEXU, MO).
EL SALVADOR: Cerro Montecristo, alt. 2200 m, 12 Apr. 1968, *F. Hamér 168E* (MO); Perquin-Sabanetas, alt. 1900-2000 m, *F. Hamer 168*; Cerro Montecristo, alt. 1950 m, *F. Hamer 276*.
HONDURAS: **Comayagua**: Cordillera de Montecillos, Montaña de San Juanillo, alt. 1900-2000 m, 10 May 1991, *G. Davidse 34294* (MO); southwest of Gracias, Camp Don Thomas, alt. 1850-2050 m, 11 May 1992, *W.G. D'Arcy 17898* (MO). **La Paz**: Las Trancas, northwest of Güajiquiro, alt. 1990 m, 22 May 1993, *M. Darío 405* (EAP, HEH, MO, TEFH). **Olancho**: El Filo, northeast of Catacamas, alt. 1900 m, 31 May 1992, *M. Darío 134* (EAP, HEH, MO, TEFH). **Siguatepeque**: Lempira, Parqué Nacional Celaque, alt. 2350 m, 12 May 1992, *House Paul 1285* (MO).
NICARAGUA: **Estelí**: Cerro Quiabú, alt. 1500-1600 m, *Grijalva & Araquistain 674* (MO, SEL); Cerro Pataste, *J. Atwood A126* (HNMN, MO). **Matagalpa**: between Jinotega and Matagalpa, alt. 1300-1500 m, *L.O. Williams et al. 23382* (F); near Sta. María de Ostumas, alt. 1500 m, *Neill 1593* (MO).
COSTA RICA: without locality, ca. 1867, *A. Endres 222* (W); Candelaria, ca. 1867, *A. Endres 96* (ill. at W); without locality, *A. Hübsch s.n.* (W); **Cartago**: Tablazo, road to San Cristóbal, ca. 1867, *A. Endres 555* (W); Tablazo, ca. 1900 m, 1 July 1900, *A. & C. Brade 1047* (holotype of var. *bradeorum*: HB): without locality, purchased from a native, 30 June 1923, *C.H. Lankester 469* (holotype of *P. peregrina*: AMES). **Heredia**: Volcán Poás, alt. 2500 m, 31 Aug. 1890, *H. Pittier 3054* (holotype of *P. poasensis*: US); Volcán Barba, near Los Cartagos, alt. 2000 m, 24 Apr. 1956, *L.O. Williams 19305* (MO); Volcán Barba, Río Vueltas, alt. 2000 m, 2 July 1984, *K. Barringer & E. Christenson 3346* (F, MO); San Rafael, El Chompipe above Monte de la Cruz, alt. 2050 m, 16 Dec. 1990, *S. Ingram & K. Ferrell-Ingram 800* (CR, MO, SEL). **Puntarenas**: Monteverde, alt. 1350 m, 22 Oct. 1984, *W.A. Haber 750* (MO); Cordillera de Talamanca, Cerro Burú, alt. 2000-2300 m, 20 Aug. 1983, *G. Davidse et al. 23804* (MO). Without locality, 4 July 1934, flowered at K, received from *C.H. Lankester s.n.* (K); without locality, 3 Jan. 1935, flowered at K, received from *C.H. Lankester s.n.* (K).
PANAMA: **Chiriquí**: Volcán de Chiriquí, alt. 2875 m, *Davidson 1030* (MO); Potrero Muleto to summit, Volcán Chiriquí, alt. 3500-4000 m, 13 July 1940,*R.E. Woodson & R.W. Schery 392* (MO).

This species is the Central American counterpart of the frequent South American *P. sclerophylla*. The two species are closely allied, differing only in small details. Both are characterized by an obtuse, elliptical, petiolate leaf borne by a well-developed ramicaul, and one or a few racemes of numerous flowers with long, slender, acuminate sepals. Specimens with wider sepals resemble *P. acuminata*. The petals are obtuse with an external carina along the vein. The lip of *P. dolichopus* is lined by three, longitudinal calli, while the lip of *P. sclerophylla* has a single carina below the middle, although traces of the lateral pair are often visible.

Pleurothallis gracilenta Luer & Vásquez, Phytologia 49: 206, 1981.

Ety.: From the Latin *gracilentis*, "becoming narrowed," referring to the vegetative and floral parts.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 2.5-7.5 cm long, with a thin, tubular sheath below the middle and 2-3 other sheaths about the base. **Leaf** erect, thickly coriaceous, semiterete, narrowly linear, acute, subpetiolate, 3-6.5 cm long, 0.35-0.45 cm wide, gradually narrowed below into the base. **Inflorescence** a loose, subsecund, simultaneously few-flowered raceme, 1-2 cm long including the peduncle ca. 0.5 cm long, subtended by a spathe 3 mm long, from an annulus just below the apex of the ramicaul; floral bracts 2 mm long; pedicels 1.5 mm long; ovary 0.5 mm long; **sepals** translucent white, pale yellow at the apices, glabrous, the dorsal sepal ovate, acute, acuminate, 4-5.5 mm long, 1.5 mm wide, 3-veined, the lateral sepals free to near the base, narrowly oblong-ovate, oblique, acute, acuminate, forming a small mentum below the column-foot, 4-5.5 mm long, 1.25 mm wide, 3-veined; **petals** translucent white, obovate, acute, narrowly long-acuminate, minutely denticulate-erose above the middle, 2.75-3.75 mm long, 0.75 mm wide; **lip** white, oblong, slightly arcuate, 2 mm long, 0.6 mm wide, the apex round, the disc shallowly sulcate between a pair of low, longitudinal calli, the base subtruncate, hinged to the column-foot; **column** stout, toothed at the apex with broad, acutely angled wings, 1.5 mm long, the foot thick, 1 mm long, the anther and the stigma ventral.

BOLIVIA: *La Paz*: Inquisivi, between Inquisivi and Circuata, alt. 2550 m, 29 Jan. 1981, *C. Luer, J. Luer & R. Vásquez 5975* (Holotype: SEL).

This small species of section *Alatae* from the Yungas of central Bolivia is characterized by the densely caespitose habit with narrowly terete leaves, acuminate sepals, and long-acuminate petals. Vegetatively, it is similar to *P. stenophylla*.

Pleurothallis jesupiorum Luer & Hirtz, Lindleyana 11: 64, 1996.

Ety.: Named for Mr. and Mrs. H. Phillips Jesup of Bristol, CT, co-discoverers of this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, blackish, erect, 2-4 cm long, with 2-3 tubular sheaths below the middle and at the base. **Leaf** erect, coriaceous, elliptical, subacute, 1.5-3 cm long, 0.7-1 cm wide, cuneate below into a petiole 4-6 mm long. **Inflorescence** a loose, distichous, simultaneously several-flowered raceme, 3-6 cm long including the peduncle 1-2 cm long, subtended by a narrow spathe 5-8 mm long from an annulus below the apex of the ramicaul; floral bracts 2 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** bright orange, fading to yellow at the base, papillose-pubescent above the middle, fleshy, elliptical-oblong, obtuse, the dorsal sepal 6.5 mm long, 1.9 mm wide, 3-veined, the lateral sepals free, oblique, forming a conical mentum below the column-foot, 6 mm long, 1.75 mm wide, 3-veined; **petals** translucent green, oblong, obtuse, 2 mm long, 1 mm wide, carinate externally along the midvein, with a faint vein to either side; **lip** green, arcuate, oblong-obovate, 2.5 mm long, 0.9 mm wide, the apex broadly rounded, the sides erect below the middle, the disc with a pair of longitudinal, subverrucose calli above the middle, terminating near the apex into several, low verrucosities, the base narrowly subtruncate, delicately hinged to the tip of the column-foot; **column** stout, 1.75 mm long, longitudinally winged, obtusely bidentate at the apex, the foot 1.5 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest east of the pass east of Loja, alt. 2500 m, 21 Jan. 1992, *C. Luer, J. Luer, P. Jesup, A. Jesup & A. Hirtz 16080* (Holotype: MO).

This species from southeastern Ecuador is related to the widely distributed and variable *P. acuminata*, but most closely to *P. mediocarinata* of Peru. Besides the small habit, it is easily distinguished by the small, bright orange sepals that are papillose-pubescent within. The smooth, external surfaces of the sepals and ovaries, as well as other vegetative parts, are covered with a web or mesh of black hyphae as commonly seen in other species of the subgenus. The petals are obtuse and carinate. The lip is arcuate and oblong, but widest at the rounded apex. On the disc above the middle only two carinae meet above the apical margin in a low, verrucose, callous junction.

Pleurothallis lagarophyta Luer, nom. et stat. nov.

Ety.: From the Greek *lagarophyton*, "lanky plant," referring to the very slender habit.

Syn.: *Pleurothallis tenuifolia* var. *longisepala* C.Schweinf., Bot. Mus. Leafl. 16: 55, 1953.

Ety.: From the Latin *longisepalus*, "with long sepals," referring to the sepals.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 6-10 cm long, with a tubular sheath below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, narrowly linear, acute, indistinctly petiolate, 9-13 cm long, 0.4-0.5 cm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** a loose, distichous, simultaneously several-flowered raceme, 5-8 cm long including the peduncle 1 cm long, subtended by a spathe 8-12 mm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts 3 mm long; pedicels 3 mm long; ovary 4 mm long with black hyphae; **sepals** white, glabrous externally, minutely short-pubescent within, subcarinate, narrowly linear-ovate, acute, the dorsal sepal 20-21 mm long, 2.5 mm wide, 3-veined, the lateral sepals free, oblique, forming a mentum below the column-foot, 20-22 mm long, 2.5 mm wide, 3-veined; **petals** translucent, thick along the midvein externally, oblong, 4.5 mm long, 1.75 mm wide, 3-veined, broadly rounded at the apex; **lip** obovate, very slightly arcuate, 5.5 mm long, 1.5 mm wide, the apex obtuse, with the margins microscopically erose, the disc shallowly sulcate between a pair of longitudinal calli along the distal two-thirds of the lip, the base narrowly truncate, hinged to the column-foot; **column** slender, semiterete, narrowly winged, 3 mm long, the foot 1 mm long, the anther and the stigma ventral.

PERU: **Huánuco**: Pachitea, above molina near Panao, 12 Nov. 1940, *E. Asplund 13697* (Holotype of *P. tenuifolia* var. *longisepala*: AMES; Isotype: S), C. Luer illustr. 19070. *Cuzco*: Urubamba, Machu Picchu, Wiñay Wayna, alt. 2750 m, 21 Apr. 1997, *W. Nauray 23* (CUZ).

This species, apparently endemic in central Peru, is characterized by long, extremely slender leaves about a half centimeter wide. The raceme of white flowers with long, narrow sepals is shorter than the leaf. The petals are rounded at the apex. The lip is obovate and shallowly concave between a pair of low calli. No verrucosities are present at the apex.

Pleurothallis maguirei Luer, sp. nov.

Ety.: Named in honor of Bassett Maguire who collected this species.

Species haec *P. sclerophyllae* Lindl. affinis, sed sepalis brevioribus oblongis obtusis, labello bicalloso et columna non-rostrata differt.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-10 cm long, with a tubular sheath near the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, elliptical oblong, subacute to obtuse, 5-9 cm long, 1.5-1.8 cm wide, cuneate below into a petiole ca. 1 cm long. **Inflorescence** a loose, subdistichous, simultaneously many-flowered raceme, 10-25 cm long including the peduncle 2-5 cm long, subtended by a narrow spathe 5-7 mm long, from an annulus below the apex of the ramicaul; floral bracts from 5 mm long below to 2 mm long toward the apex; pedicels 1.5-2 mm long; ovary 1.5-3 mm long; **sepals** green, long-ciliate and pubescent within above the middle, carinate, the dorsal sepal narrowly elliptical-oblong, narrowly obtuse, 6.5-8.5 mm long, 1.5-2 mm wide, 3-veined, connate basally for 1 mm, the lateral sepals connate 1.5-2 mm, narrowly oblong, forming a short mentum with the column-foot, 6-8 mm long, 1.5 mm wide, 3-veined; **petals** translucent, oblong, rounded and concave at the apex, 2 mm long, 1.3 mm wide, 1-(faintly 3-)veined, with the midvein thick; **lip** oblong-trilobed, 2 mm long, 0.8 mm wide unexpanded, the apex broadly rounded, lightly to coarsely verrucose, the sides erect, tall, broadly rounded on the middle third, the disc shallowly concave between a pair of longitudinal, verrucose carinae between the middle and apical thirds, the base unguiculate, narrowly subtruncate, hinged to the tip of the column-foot; **column** semiterete, 2 mm long, minutely denticulate at the apex, the foot 1.5 mm long, the anther, rostellum and stigma ventral.

GUYANA: Kaieteur Plateau, 30 Apr. 1944, *B. Maguire & D.B. Fanshawe 23102* (Holotype: K; Isotype: W), C. Luer illustr. 19182; edge of Kaieteur Falls, 24 Feb. 1878, *E.F. Im Thurn s.n.* (K); British Guayana, cultivated by Veitch, July 1884, *Veitch s.n.* (K), C. Luer illustr. 19119.

This species is apparently endemic in the Guyana Highlands, but not included by Schweinfurth in the *Orchids of the Guayana Highlands* even under another name. For a century or a half century, several collections lay in herbaria unidentified, or identified as *P. sclerophylla* or *P. stenopetala*. Related to both, this species is distinguished by oblong, obtuse sepals that are sometimes slightly narrowed above the middle; a lip with high lobes on the middle thirds flanking a pair of verrucose calli without a midline callus; and a column without the beak found in *P. sclerophylla*.

Pleurothallis mediocarinata C.Schweinf., Fieldiana Bot. 33: 26, 1970.

Ety.: From the Latin *mediocarinatus*, "with a midline carina," referring to the labellum.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical, obtuse to rounded at the apex, petiolate, 3.5-5 cm long, 1.5-2 cm wide, cuneate below to the petiole ca. 0.5 cm long. **Inflorescence** a loose, secund, simultaneously several-flowered raceme, 5-10 cm long including the peduncle 2-3 cm long, subtended by a spathe 3-4 mm long, from an annulus 2-3 mm below the base of the leaf; floral bracts 3 mm long; pedicels 2 mm long; ovary 2.5 mm long; **sepals** apparently yellow, glabrous externally, pubescent within, subcarinate, elliptical-oblong, obtuse to rounded at the apex, the dorsal sepal 8.5 mm long, 2.5 mm wide, 3-veined, the lateral sepals connate at the base, oblique, forming a shallow mentum below the column-foot, 8 mm long, 2.5 mm wide, 3-veined; **petals** translucent, elliptical-obovate, rounded at the apex, 4 mm long, 1.5 mm wide, subcarinate externally along the vein; **lip** oblong-ovate, lightly arcuate, 4 mm long, 1-1.5 mm wide, the apex obtuse, minutely verrucose with erose margins, the sides thickened, low-rounded and erect below the middle, the disc with a midline crest below the middle, the base subtruncate, hinged to the column-foot; **column** stout, 2.5 mm long, the foot 1 mm long, the anther and the stigma ventral.

PERU: **Cuzco**: Urubamba, Machu Picchu, lithophytic, alt. 2400 m, 5 Nov. 1957, *P.C. Hutchison 1765* (Holotype: JEPS; Isotype: AMES, US). Same area, lithophytic, collected by K. Tokach, flowered in cultivation in Portland, OR, *T. Tokach P-20* (MO), C. Luer illustr. 17034.
BOLIVIA: **Cochabamba**: Carrasco, Sehuencas, alt. 2150 m, 30 Nov. 1993, *P. Ibisch 93.1581* (MO).

This species, found uncommonly the mountains of southern Peru and Bolivia, is basically similar to most species grouped together in this taxon. It is distinguished by the elliptical, petiolate leaf surpassed by a secund, several-flowered raceme of medium-sized flowers. The sepals are obtuse and pubescent within; the petals are rounded at the apex; and the lip is minutely verrucose at the obtuse apex with thick, erect margins below the middle. A midline callus is present below the middle.

Pleurothallis meridana Rchb.f., Linnaea 22: 826, 1849.

Ety.: Named for the community of Merida where the species was collected.

Plant small to medium, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4-6 cm long, with 2-3 tubular sheaths below the middle and at the base. **Leaf** erect, thickly coriaceous, narrowly elliptical, subacute, 3-15 cm long, 1 cm wide, cuneate below into a petiole ca. 1 cm long. **Inflorescence** a loose, subdistichous, simultaneously several-flowered raceme, 5-6 cm long including the peduncle 1-2 cm long, subtended by a narrow spathe 5-6 mm long from an annulus below the apex of the ramicaul; floral bracts 2 mm long; pedicels 1.5-2 mm long; ovary 1-1.5 mm long; **sepals** orange, glabrous extemally, shortly pubescent within, the dorsal sepal elliptical-ovate, subacute, 6.5-8 mm long, 2.5 mm wide, 3-veined, the lateral sepals free, oblique, forming a short mentum below the column-foot, 6.5-8 mm long, 2 mm wide, 3-veined; **petals** translucent, obovate, rounded and concave at the apex, 2.3 mm long, 1.3 mm wide, 3-veined; **lip** yellow, arcuate, oblong-ovate, 4.5 mm long, 1.5 mm wide expanded, the apex broadly rounded, the sides erect below the middle, the disc with a pair of longitudinal carinae on the middle third that merge with the erect margins below the middle, the base narrowly subtruncate, delicately hinged to the tip of the column-foot; **column** semiterete, 2 mm long, minutely denticulate at the apex, the foot 1.5 mm long, the anther, rostellum and stigma ventral.

VENEZUELA: **Mérida**: near Mérida, Feb. 1848, *Moritz 1063* (Lectotype here designated: W), C. Luer illustr. 18572; **Táchira**: Dist. Lobatera, La Cazadora, alt. 1600-2000 m, 22 July 1983, *H. Vander Werff 5466* (MO), C. Luer illustr. 17228.

This species is apparently endemic in the mountains of western Venezuela. It was described by Reichenbach, but another similar species from Colombia (*Schlim 1441*, was included in the publication. Closely related to *P. acuminata*, it is characterized by a narrowly elliptical leaf surpassed by a several-flowered raceme; the sepals are non-acuminate, shorter, and proportionately broader; and the petals are obovate with the apex rounded and concave. As with *P. acuminata*, the lip is similarly arcuate, but the carinae merge into the erect margins below the middle.

Pleurothallis obovata (Lindl.) Lindl., Bot. Reg. 28: Misc. 75, 1842.

Bas.: *Specklinia obovata* Lindl., Bot. Reg. 25: Misc. 137, 1839.
Ety.: From the Latin *obovatus*, "obovate," referring to the leaves.

Syn.: *Pleurothallis dendrophila* Rchb.f., Linnaea 22: 827, 1849.
Ety.: From the Greek *dendrophilus*, "tree-loving," referring the epiphytic habitat.

Syn.: *Pleurothallis octomeriaeformis* Rchb.f., Bonplandia 2: 25, 1854.
Ety.: Named for a vague resemblance of an *Octomeria*.

Syn.: *Pleurothallis albida* Lindl., Ann. Mag. Nat. Hist. ser. 3, 1: 327, 1858.
Ety.: From the Latin *albidus*, "whitish," referring to the color of the flowers.

Syn.: *Stelis fasciculiflora* Regel, Act. Hort. Petrop. 1: 99, 1871.
Ety.: From the Latin *fasciculiflorus*, "with fascicled flowers," referring to the inflorescence.

Syn.: *Anathallis fasciculata* Barb. Rodr., Gen. Sp. Orch. Nov. 1: 23, 1877.
Ety.: From the Latin *fasciculatus*, "fascicled," referring to the inflorescence.

Syn.: *Anathallis densiflora* Barb. Rodr., Gen. Sp. Orch. Nov. 2: 73, 1882.
Ety.: From the Latin *densiflorus*, "densely flowered," referring to the inflorescence.

Syn.: *Anathallis osmosperma* Barb. Rodr., Gen. Sp. Orch. Nov. 2: 73, 1882.
Ety.: From the Greek *osmosperma*, "fragrant seed," apparently referring to the capsule.

Syn.: *Anathallis micrantha* Barb. Rodr., Gen. Sp. Orch. Nov. 2: 76, 1882.
Ety.: From the Greek *micranthos*, "minutely flowered," referring to the inflorescence.

Syn.: *Humboldtia obovata* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis fasciculata* (Barb. Rodr.) Cogn., Fl. Bras. 3(4): 559, 1896.

Syn.: *Pleurothallis densiflora* (Barb. Rodr.) Cogn., Fl. Bras. 3(4): 559, 1896.

Syn.: *Pleurothallis osmosperma* (Barb. Rodr.) Cogn., Fl. Bras. 3(4): 563, 1896.

Syn.: *Pleurothallis minutiflora* Cogn., Fl. Bras. 3(4): 564, 1896, nom. nov., non S.Wats. 1888.

Syn.: *Pleurothallis modestiflora* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 35: 56, 1925, nom. nov.
Ety.: From the Latin *modestiflorus*, "modestly flowered," referring to the inflorescence.

Syn.: *Pleurothallis densiflora* var. *parvifolia* Garay, Arquiv. Jard. Bot. 12: 171, 1952.
Ety.: From the Latin *parvifolius*, "small-leaved," referring to the leaves.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-8 cm long, with a tubular sheath below the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, elliptical to elliptical-obovate, subacute to obtuse, petiolate, 6-10 cm long, 2-2.5 cm wide, cuneate below into the petiole 1-1.5 cm long. **Inflorescence** a fascicle of several loose, simultaneously few-flowered racemes, 1-1.5 cm long including the peduncle 0.5-1 cm long, subtended by a spathe 3-4 mm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts blackish brown, 2 mm long; pedicels 1.5 mm long; ovary 0.5 mm long; **sepals** pale yellow, glabrous, narrowly ovate, acute, the dorsal sepal 3.75 mm long, 1.5 mm wide, 3-veined, the lateral sepals free, oblique, forming a small mentum below the column-foot, 4 mm long, 1 mm wide, 3-veined; **petals** translucent yellow, narrowly ovate, acute, 3 mm long, 1 mm wide; **lip** yellow, oblong, 1.5 mm long, 0.6 mm wide, the apex acute to subacute, the disc shallowly sulcate, the base subtruncate, hinged to the column-foot; **column** stout, winged, 1.5 mm long, the foot thick, 0.5 mm long, the anther and the stigma ventral.

BRAZIL: Without collection data (Holotype: K; Isotype: W). **Minas Geraës**: Serra de Caldas, Mar. *B. Rodrigues s.n.* (holotype of *P. fasciculata*: Rodrigues illustr.); Casa de Pedra, São José d'El Rey, *B. Rodriques s.n.* (holotype of *P. minutiflora*: Rodrigues illustr.). **Paraná**: without locality, *P. Dusén 1314* (holotype of var. *parvifolia*: S; Isotype: AMES). **Santa Catarina**: Rio Uruguay, 1 June 1911, *P. Dusén 11795* (AMES, S). **Paraná**: Guaira, Sete Quedas, 23 Apr. 1968, G. Hatschbach 19128 (C); Laranjeiras-do do Sul, Salto Osório, Rio Iguaçu, 18 Apr. 1970, *G. Hatschbach 24163* (C, K, M, MBM). **Rio de Janeiro**: near Rodeio, *B. Rodrigues s.n.* (holotype of *P. densiflora*: Rodrigues illustr.); Serra de Santa Anna, *B. Rodrigues s.n.* (holotype of *P. osmosperma*: Rodrigues illustr.).
BOLIVIA: **La Paz**: Apolo, 17 Apr. 1902, alt. 5,000 ft., *R.S. Williams 2444* (K); Inquisivi, Polea, alt. 2500 m, 24 Apr. 1981, *C. Luer, J. Luer & R. Vásquez 6017* (SEL). **Santa Cruz**: Double Falls, northeast of Samaipata, flowered in cultivation in Chamblee, GA, 28 June 1991, *F L Stevenson 78-9* (MO).
SP: Iguapé: Rio Vermelho near Peroupava, Apr. 1920, *A.C. Brade 8151* (HB, M).
PERU: **Amazonas**: Río Utcubamba, road to Bagua Chica, alt. 1250 m, 28 Jan. 1964, *P.C. Hutchison & J.K. Wright 3847* (AMES, UC).
ECUADOR: **Morona-Santiago**: near union of Río Bomboiza and Río Zamora, alt. 600 m, 4 Nov. 1986, *D. Neill et al. 7436* (MO).
COLOMBIA: **Santander**: Río Surutá, between El Jaboncillo and Suratá, alt. 1500-1800 m, 3 Jan. 1927, *E.P. Killip & A.C. Smith 16401* (AMES, NY). **Nariño**: slopes of Galera near Pasto, alt. 1800-2300 m, 10 Feb. 1881, *F.C. Lehmann 293* (W).
VENEZUELA: **Dist. Fed.**: Caracas, alt. 5,000 ft., Oct., *H. Wagener 546* (holotype of *P. octomeriaeformis*: W; isotype: K); Cerro Naiguatá, vicinity of La Escalera, alt. 900-1000 m, 19 Nov. 1963, *J.A. Steyermark 92065* (AMES, VEN). **Aragua**: Colonia Tovar, 1854-56, *Fendler 1487* (K); Colonia Tovar, 1854-56, *A. Fendler 1474* (holotype of *P. dendrophila*: K; isotype: AMES). **Falcon**: Sierra de San Luis, between Curimagua and San Luis, alt. 800-900 m, 20 July 1967, *J.A. Steyermark 99264* (AMES, VEN). **Trujillo**: Salto La Nerva, alt. 1800 m, 3 Sept. 1966, *J.A. Steyermark & M. Rabe 97196* (AMES, VEN).
CUBA: Oriente, near Monte Verde, 1859, *C. Wright 655* (holotype of *P. albida*: K; isotype: AMES, BR; NY); near Josephina, 1859, *C. Wright 1704* (AMES, BM, BR, HAC, K); Paso Estancia, Apr. 1909, *J.A. Schafer 1613* (NY, US); Yateras, north of Jaguey, Farallones de la Perla, alt. 450-585 m, 2 May 1907, *W.R. Maxon 4384* (US). Ensenada de Mora, 28-29 Mar. 1912, *N.L. Britton, J.F. Cowell & J.A. Schafer 13004* (AMES, NY); Bayate, 1 Mar. 1915, *E.L. Ekman 4827* (AMES, NY, S); Mayarí, 5 Mar. 1917, *E.L. Ekman 6811* (S, US); Bayate, 27 Nov. 1917, *E.L. Ekman 9001* (NY, S, US). Guantanamo: La Prenda, 30 Dec. 1920, *Bro. Hioram 4149* (AMES, NY). Oriente: Santiago de Cuba, falda este de Gran Piedra, 26 Apr. 1969, *J. Bisse & H. Lippold 15052* (JE). Oriente: Siboney, lomas de Santa Maria del Pinar, alt. 200-400 m, 4 May 1969, *J. Bisse & H. Lippold 15169* (JE). Guantanamo: Monte Verde, ca. alt. 2,200 ft., 30 Dec. 1960, *M. López F. 2512* (HAJB). Sierra Maestra, Cordilla de la Gran Piedra, 11 Jan. 1960, *Bro. Alain, J. Acuña & M. López F. 7465* (HAJB); Santa Maria de Loreto, alt. ca. 2,000 ft., 25 Jan. 1959, *M. López F. 2975* (HAJB). **Holguín**: Mayarí, Sierra de Nipe, Finca Caridad, 24 Nov. 1954, *M. López F. 1597* (HAJB); Sierra Cristal, cabezadas del Río Lebisa, 27 Oct. 1955, *Bro. Alain & M. López F. 4626* (HAC, HAJB); Arroyo de la Caridad, 25 Nov. 1954, *M. López F. 1568* (HAJB). Florida Blanca, Alto Songo, 17 Dec. 1960, *M. López F. 2360* (HAJB);

DOMINICAN REPUBLIC: Loma Isabel de la Torre, alt. 1,000 ft., 7 July 1887, *Eggers 2799* (BREM). **Sanchez:** Samaná, Las Cañitas Mt., alt. 1,000 ft., 21 Oct. 1909, *N. Taylor 14* (AMES, NY). **Puerto Plata:** along Yaroa River, alt. 500 m, 1 May 1968, *A.H. Liogier 11044* (AMES, NY). Los Haitises, Samaná Bay, Barracote River, alt. 250 m, 19 Mar. 1969, *A.H. Liogier 14483* (AMES, NY); Sierra de Yaroa, alt. 850 m, 28 Jan. 1969, *A.H. Liogier 13582* (NY); northwest of Santiago, El Peñón, above Las Lavas, alt. 600 m, 7 May 1968, *A.H. Liogier 11163* (NY). **Dajabón:** Cerro Chacuey, alt. ca. 400 m, 20 Nov. 1984, *T. Zanoni et al. 32580* (NY).
HAITI: Marmelade, alt. ca. 3,000 ft., 24 Aug. 1903, *G.V. Nash 752* (NY). Dept. du Nord: vicinity of Dondon, alt. ca. 400 m, 8 Jan. 1926, *E.C. Leonard 8668, 8742* (AMES, NY, US).
PUERTO RICO: Luquillo Mountains, 19 Feb. 1935, *F.W. Horne s.n.* (NY).
NICARAGUA: **Chontales:** Chamorro Mine, alt. 600 m, *A. Heller 3974* (SEL).
GUYANA: Demirara, cultivated at Kew, Dec. 1860, from *Loddiges s.n.* (K).

This species is relatively frequent and widely distributed through the Antilles and Central America to southern Brazil. It is distinguished by the elliptical leaf that is sometimes more or less obovate, and a disheveled fascicle of several, short, few-flowered racemes produced from near the petiolate base. The flowers are small with ovate-acute sepals and petals and a simple, oblong lip.

Pleurothallis obovata is represented by variable forms that exhibit longer racemes and larger flowers with long-attenuate apices of the sepals and petals. The extreme of these forms is so distinctive that it is recognized here as *P. citrina*. Intermediate forms have been given specific names, but to try to apply a name to any one of these forms is too inconclusive. They are listed in the synonymy above.

Pleurothallis papuligera Schltr., Repert. Spec. Nov. Regni Veg. 10: 453, 1912.
Ety.: From the Latin *papuliger*, "bearing papules," referring to the coarsely pubescent sepals.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender to stout, 8-20 cm long, with a tubular sheath near the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 6-13 cm long, 2.5-3.5 cm wide, cuneate below into the petiole 1-2.5 cm long. **Inflorescence** 1 to 2 loose, subsecund, simultaneously many-flowered racemes, 12-27 cm long including the peduncle 3-5 cm long, subtended by a spathe 1-2 cm long, from an annulus 3-5 mm below the apex of the ramicaul; floral bracts 3-5 mm long; pedicels 3-4 mm long; ovary 3-4 mm long; **sepals** bright yellow, subcarinate, glabrous externally, coarsely short-pubescent within, narrowly elliptical-ovate, narrowly obtuse, the dorsal sepal 12-14 mm long, 2.5-3 mm wide, 3-veined, connate to the lateral sepals for 1.5-2 mm, the lateral sepals free, oblique, forming a shallow mentum below the column-foot, 11-14 mm long, 2.5 mm wide, 3-veined; **petals** translucent yellow, oblong-obovate, obtuse, 3.25 mm long, 1.25 mm wide, carinate externally along the midvein, protruding beyond the apex; **lip** yellow, oblong to oblong-ovate, slightly arcuate, 3.5 mm long, 1 mm wide, the apex rounded, coarsely verrucose, the margins erect and broadly rounded below the apical third with intramural lamellae, with a central, longitudinal callus, the base subtruncate, hinged to the column-foot; **column** stout, longitudinally winged, 3 mm long, the foot thick, 2 mm long, the anther and the stigma ventral.

BOLIVIA: **La Paz:** Nor Yungas, Unduavi auf Bäumen, alt. 3200 m, Nov. 1910, *O. Buchtien 2624* (Holotype of *P. papuligera* destroyed at B; Lectotype here designated: K; Isolectotypes: AMES, BM, HB, US); lithophytic in valley below Unduavi, alt. 3100 m, 28 Jan. 1980, *C. Luer, J. Luer & R. Vásquez 4964* (SEL). **Cochabamba:** Chapare, road to Tablas, alt. 2500 m, 9 Feb. 1980, *C. Luer, J. Luer & R. Vásquez 5167* (SEL). **Santa Cruz:** east of Siberia, alt. 2600 m, 18 Jan. 1983, *C. Luer, J. Luer & R. Vásquez 8533* (SEL).

This species, endemic but widely distributed in Bolivia, is closely allied to the widely distributed *P. acuminata*. In their habit with a many-flowered raceme far surpassing an obtuse, elliptical, petiolate leaf, they are similar, but the sepals of *P. papuligera* are coarsely pubescent within. The petals are similar. The lip of *P. papuligera* differs with the tall, thickened, broadly rounded margins below the middle with a longitudinal callus between, and a coarsely verrucose, rounded apex. The elliptical lip of *P. acuminata* is simply longitudinally bicallous.

Pleurothallis ramulosa Lindl., Folia Orch. *Pleurothallis* 33, 1859.

Ety.: From the Latin *ramulosus*, "with branches," referring to the prolific habit.

Syn.: *Pleurothallis superposita* Schltr., Repert. Spec. Nov. Regni Veg. 14: 386. 1916.
Ety.: From the Latin *superpositus*, "superposed," referring to the prolific ramicauls.

Plant medium to large, epiphytic, caespitose below, prolific above; roots slender. Ramicauls erect, superposed, slender to stout, 5-12 cm long, with a tubular sheath below the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 3-5.5 cm long, 1-2 cm wide, cuneate below into the petiole ca 0.5 cm long. **Inflorescence** a loose, subsecund, simultaneously several- to many-flowered raceme, 10-25 cm long including the peduncle 2-5 cm long, subtended by a spathe ca. 1 cm long, from an annulus 3-5 mm below the apex of the ramicaul; floral bracts 4 mm long; pedicels 3 mm long; ovary 4 mm long; **sepals** white to pale yellow-green, glabrous externally, shortly pubescent within, subcarinate, narrowly ovate, acute, attenuate, the dorsal sepal 18-20 mm long, 2 mm wide, 3-veined, the lateral sepals free, oblique, forming a small mentum below the column-foot, 18-20 mm long, 1.5-2 mm wide, 3-veined; **petals** translucent white, oblong-obovate, obtuse, 2.25 mm long, 1 mm wide; **lip** yellow or green, oblong, 2.5-3.5 mm long, 1 mm wide, the apex round, minutely verrucose, the disc with 3 low, longitudinal calli, the base subtruncate, hinged to the column-foot; **column** stout, long-cucullate at the apex, 2 mm long, the foot thick, 1 mm long, the anther and stigma ventral.

ECUADOR: **Pichincha**: west Andes of Quito, *W. Jameson s.n.* (Holotype: K); Andes of Quito, 1855, *J. P. Couthouy s.n.* (AMES, W); "Quito," *H. Karsten s.n.* (W); near Canzacoto, May 1885, *A. Sodiro 29* (holotype of *P. superposita* destroyed at B; lectotype here designated: QPLS); between Chiriboga and Guarumal, alt. 2000 m, 28 Oct. 1955, *E. Asplund 18223* (AMES, C, K, S, US); north of Santo Domingo, alt. 7400 ft., 2 Aug. 1980, *R. Sauleda et al. 3919* (AMES, USF); Rio Guajalito between Quito and Santo Domingo, alt. 1800-2200 m, 6 Sept. 1986, *V. Zak 1157* (K, MO). **Carchi**: between Tulcán and Maldonado, alt. 1500-1700 m, 1 Oct. 1981, *L. Werling & S. Leth-Nissen 085* (AMES, QCA); same area, alt. 1600 m, 16 Mar. 1991, *C. Luer, J. Luer, A. Hirtz et al. 15087* (MO). **Imbabura**: slopes of Cotacachi toward Apuela, alt. ca. 2400 m, 5 Dec. 1976, *E.W. Davis 317* (AMES).
COLOMBIA: **Cundinamarca**: Montes de Usaquén, alt. 2700 m, Apr. 1940, *L. Uribe U. 429* (AMES); Bogotá, Quebrada del Chicó, alt. 2700-3000 m, *M. Schneider 169* (AMES, S); Soacha, El Charquita, 30 Sept. 1956, *M. Ospina 2* (AMES).
VENEZUELA: without locality, collected and cultivated in Rading, The Netherlands, 4 Sept. 1984 by *J.M. Wubben s.n.* (MO).

This species is little more than a prolific form of *P. sclerophylla*, from which it is readily distinguished by the scandent habit. Both taxa share the same distribution. Sometimes great, tangled masses of *P. ramulosa* occur.

The flowers of the two species are very similar with long-attenuated sepals and short, obtuse petals. The lip of *P. ramulosa* is oblong without the midline callus and without tall margins below the middle. The apex of the column is not as beaked as it is in *P. sclerophylla*.

Pleurothallis regalis Luer, Selbyana 5: 178, 1979.

Ety.: From the Latin *regalis*, "regal," referring to the royal colors of the flowers.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender to stout, 5-13 cm long, with a tubular sheath near the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 5-10 cm long, 1.5-3 cm wide, narrowly cuneate below into the petiole 1-3 cm long. **Inflorescence** a loose, subsecund, simultaneously many-flowered raceme, 10-20 cm long including the peduncle 2-5 cm long, subtended by a spathe 5-8 mm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts 2-3 mm long; pedicels 2-3 mm long; ovary 2-3 mm long; **sepals** yellow-green, glabrous externally, pubescent within, subcarinate, narrowly ovate, acute, the dorsal sepal 9-15 mm long, 3-3.25 mm wide, 3-veined, the lateral sepals free, oblique, forming a mentum below the column-foot, 9-15 mm long, 3 mm wide, 3-veined; **petals** translucent yellow with 3 purple stripes, elliptical-oblong, obtuse, minutely denticulate, 3.25-4 mm long, 1.75 mm wide, carinate externally along the midvein; **lip** yellow with 3 stripes, oblong-ovate, arcuate, 4-4.5 mm long, 1.8-2.5 mm wide, the apex round, microscopically verrucose, with purple border, minutely denticulate-erose, the disc with 3 parallel, longitudinal calli, the middle callus extending nearly to the apical border, the lateral calli ending near the middle, the base subtruncate, hinged to the column-foot; **column** stout, longitudinally winged, 2 mm long, the foot thick, 1 mm long, the anther and the stigma ventral.

ECUADOR: **Cotopaxi**: between Angamarca and El Corazón, alt. ca. 2000 m, 17 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 3998* (Holotype: SEL); between Quevedo and Latacunga, Nov. 1974, collected by George Kennedy, flowered in cultivation 9 June 1976, *C. Luer 683* (SEL). **Pichincha**: old road between Chiriboga and Santo Domingo, alt. 1300 m, 28 May 1988, *C. Luer & A. Hirtz 13716* (MO).

This species is closely allied to the widely distributed and variable *P. acuminata*. In habit the two are inseparable, but *P. regalis* is distinguished by the longer and denser pubescence of the inner surfaces of the sepals, and details of the lip. The lip of *P. regalis* is widest below the middle, instead of above the middle. Instead of bicallose, the lip is tricallose with the middle callus the largest and extending to near the apical margin. The margins are minutely denticulate-erose, instead of entire as in *P. acuminata*. The broadly rounded apical margin and middle callus are bright purple in contrast to the yellow of the rest of the flower.

Pleurothallis rubens Lindl., Bot. Reg. 21, sub. t. 1797, 1836.

Ety.: From the Latin *rubens*, "becoming red," referring to the color of the dried flowers.

Syn.: *Humboldtia rubens* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis rubens* var. *latifolia* Cogn., Fl. Bras. 3(4): 566, 1896.

Syn.: *Pleurothallis rubens* var. *longifolia* Cogn., Fl. Bras. 3(4): 566, 1896.

Syn.: *Pleurothallis amblyopetala* Schltr., Repert. Spec. Nov. Regni Veg. 12: 486, 1913.
Ety.: From the Greek *amblyopetalon*, "blunt petal," referring to the obtuse petals.

Syn.: *Pleurothallis montserratii* Porsch, Oesterr. Bot. Zeitsch. 158, 1905.
Ety.: Named for the community of Montserrat where the specimen was collected.

Syn.: *Pleurothallis excisa* C.Schweinf., Bot. Mus. Leafl. 16: 48, 1953.
Ety.: From the Latin *excisus*, "excised," referring to an obscure quality of the lip.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender to stout, 5-13 cm long, with a tubular sheath near the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, elliptical, obtuse to rounded at the apex, petiolate, 5-12 cm long, 1.5-3 cm wide, cuneate below into the petiole 1-1.5 cm long. **Inflorescence** a subcongested, subsecund, simultaneously several- to many-flowered raceme, 10-28 mm long including the peduncle 2-5 cm long, subtended by a spathe 7-15 mm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts 5-7 mm long, inflated; pedicels 2-3 mm long; ovary 3-5 mm long; **sepals** pale yellow-green, more or less suffused with purple at the base, shortly pubescent and ciliate or erose-ciliate above the middle, subcarinate, narrowly ovate, acute, the dorsal sepal 10-15 mm long, 1.5-3 mm wide, 3-veined, the lateral sepals free, oblique, forming a small, shallow mentum below the column-foot, 10-15 mm long, 1.5-2.5 mm wide, 3-veined; **petals** translucent yellow or green, more or less suffused with purple, oblong-obovate, rounded at the apex, 4-5 mm long, 1.5-2 mm wide, thickened extemally along the midvein; **lip** yellow or green, oblong to oblong-obovate, subpandurate, 4-5 mm long, 1-2 mm wide, the apex expanded, rounded, erose, variously spiculate-verrucose centrally, thickened below the isthmus with broadly rounded, erect margins, the disc shallowly concave between, the base truncate, hinged to the column-foot; **column** slender with the apex long-cucullate beyond the ventral anther, 4-5 mm long, the foot 1.5-2 mm long, the anther and the stigma ventral.

BRAZIL: **Rio de Janeiro**: near town of Sâo Joâo d'El Rey, *Martius s.n.* (Holotype: M, Isotype: W); without locality, 1882, *A. Glaziou 14305-6* (C, K); without locality, *A. Glaziou 16370* (BR, C, K); Organ Mountains, vicinity of Theresopolis, alt. 1100 m, 17 Dec. 1928, *L.B. Smith 1513* (AMES, K); Muri, near Nova Friburgo, alt. 1400 m, 28 Nov. 1963, *F. Dungs 20506* (HB, K). **Paraná**: Serra do Mar, desvio Ypiranga, alt. 700 m, 11 Jan. 1915, *P. Dusén 16326* (AMES, S); Porto de Ceina, cultivated 23 Nov. 1909, *P. Dusén 8990* (AMES, K, S); Tacarehiy, flowered in cultivation, 5 Dec. 1914, *P. Dusén 16086* (AMES, S). **São Paulo**; Alto da Serra, *F.C. Hoehne 22502* (AMES). **Santa Catarina**: Horto Forestal, I.N.P. Ibirama, alt. 300 m, 12 Dec. 1956, *Reitz & Klein 3868* (AMES). **São Paulo**: 21 Dec. 1893, Loefgren 1861 (C). Fazenda Montserrat am Itatiaya, Sept. 1901, *Wettstein & Schniffner s.n.* (holotype of *P. montserratii*: W?). **Paraná**: Curitiba, Morretes, Estr. Graciosa, Ferradura, 25 Dec. 1947, *G. Hatschbach 844* (K, MBM). **Minas Geraës**: near Caldas, Jan. 1855, *G.A. Lindberg 628* (BR); near Caldas, 1863, *A. Regnell I 424* (BR, C, LE, S, W). **Bahia**: Rio de Contas, Pico das Almas, alt. 1850 m, 24 Nov. 1988, *R. M. Harley et al. 26267* (K, SPF, IBUSP, CEPLAC).
BOLIVIA: **La Paz**: Yungas de San Mateo, alt. ca. 2000 m, Apr. 1911, *T. Herzog 1988a* (holotype of *P. amblyopetala* destroyed at B); Larecaja, Mapiri region, San Carlos near Sarampiuni, alt. 600 m, 6 Feb. 1927, *O. Buchtien 554* (US); between Guanay and Tipuani, alt. 1200 m, 23 Jan. 1988, *C. Luer, J. Luer, R. Vásquez & J. Solomon 12920* (MO); Murillo, along Río Zongo, alt. 2900 m, 22 Nov. 1992, *C. Luer et al. 16469* (MO); Saavedra, below Charazani, alt. 2550 m, 19 Nov. 1992, *C. Luer et al. 16443* (MO).

Cochabamba: Ayopaya, Sailapata, alt. 3500 m, Dec. 1955, *M. Cardenas 3395* (AMES), C. Luer illustr. 18952; Chapare, from Cochabamba toward Villa Tunari, alt. 2950 m, Jan. 1981, *C. Luer, J. Luer & R. Vásquez 6013* (SEL).
PERU: **Junín**: Chanchamayo Valley, alt. 1500 m, *Schuncke 516* (?). **Cuzco**: Paucartambo, Pillahuanta, alt. 3200 m, 11 Dec. 1942, *C. Vargas 3006* (holotype of *P. excisa*: AMES; isotype CUZ); Urubamba, Machu Picchu, alt. 2400 m, 5 Nov. 1957, *P.C. Hutchison 1765* (AMES, UC); Calca, Manto, alt. 2300 m, 4 Apr. 1976, *C. Vargas 22707* (CUZ).
ECUADOR: **Guayas**: east of Manglar, alt. 500 m, 3 Aug. 1941, *O. Haught 3107* (AMES, US). **Loja**: south of pass south of Jimbura, alt. 2600 m, 21 Feb. 1986, *C. Luer, J. Luer, A. Hirtz & A. Embree 11987* (MO); new road between Loja and Sabanilla, Mar. 1990, collected by E. Dreise and D. D'Alessandro, *C. Luer 16306* (MO).
COLOMBIA: **Cundinamarca**: Monterredondo between Quetame and Guayabetal, alt. 1300 m, *L. Uribe U. 4856* (AMES, COL).

This species is variable in its wide distribution from southern Ecuador into southern Brazil. With the elliptical, obtuse leaf borne by a well-developed ramicaul, and surpassed by a raceme of relatively large, yellow-green flowers with widely spread sepals, it is closely related to the frequent *P. acuminata*, but the subpandurate lip with an expanded, more or less erose apex, and broadly rounded, erect sides with intramural laminae below the middle are distinctive. Most distinguishing is the long-cucullate, pointed apex of the column. When dry, the whole plant including the flowers turns a peculiar red-brown, which is easily recognized on herbarium sheets. The inflorescence usually far surpasses the leaf, but the racemes are no longer than the leaves in a collection from Bolivia.

Pleurothallis scariosa (La Llave) Lindl., Bot. Reg. 28: misc. 71, 1842.

Bas.: *Dendrobium scariosum* La Llave, Nov. Veg. Descr. fasc. 2: Orch. Opusc. 39, 1825.

Ety.: From the Latin *scariosus*, "dry, thin," referring to the dried leaves.

Syn.: *Specklinia scariosa* (La Llave) Lindl., Edwards' Bot. Reg. 21: sub t. 1797, 1835.

Syn.: *Humboldtia scariosa* (La Llave) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 7-15 cm long, with a tubular sheath below the middle and 2 others at the base. **Leaf** erect, coriaceous, elliptical, obtuse, petiolate, 7-10 cm long, 2-3 cm wide, broadly cuneate below into the slender petiole 1-2 cm long. **Inflorescence** a strict, erect, subcongested, simultaneously many-flowered raceme, up to 12 cm long including the peduncle 1-2 cm long, subtended by a spathe ca. 1 cm long, from a node 5-6 mm below the abscission layer; floral bracts tubular, oblique, 3 mm long; pedicels 1.5-3 mm long; ovary 1.5-2 mm long; **sepals** dull white, minutely pubescent within, subcarinate, free to the base, the dorsal sepal narrowly ovate, acute, 6-8 mm long, 2 mm wide, 3-veined, the lateral sepals narrowly ovate, acute, 6-8 mm long, 2 mm wide, 3-veined, forming a mentum below the column-foot; **petals** translucent with purple midvein, elliptical, subacute to obtuse, entire, 2.5-3 mm long, 1 mm wide, 1-veined; **lip** mottled with purple and with purple calli, oblong, slightly arcuate, 2.5-3.5 mm long, 1 mm wide, the apex rounded, minutely serrulate, with erect, broadly rounded sides on the lower half, the disc with three, longitudinal, verrucose calli above the middle to near the apex, with the calli merging at the apex of the lip, the base truncate, hinged to the column-foot; **column** semiterete, 2 mm long, the foot 1 mm long, the anther pointed, ventral, the rostellum and stigma ventral.

MEXICO: **Michoacan**: "supra arbores versus Arúmbaro," *Lexarza s.n.* (Lectotype of *D. scariosum* lost); Morelia, road Santa Maria de Guido-Sinpaneo, 12 Dec. 1989, *M.A Soto Arenas, E. & M. Greenwood 3092* (Neotype designated by M.A. Soto, Icon. Orchid. t. 93, 1990: AMO), clononeotypes: K, MEXU). **México**: Temascaltepec, Cajones, alt. 2430 m, 21 July 1933, *G.B. Hinton 4235* (K, MO), C. Luer illustr. 18573. Without locality, cultivated by J & L Orchids, Easton, CT, 8 May 1996, *C. Luer 17870* (MO).

This species, endemic in Mexico, was scantily described in *Dendrobium* by La Llave in the nineteenth century. It is closely allied to the frequent, Central American *P. dolichopus*. Although similar in most respects, the narrowly acute, much shorter sepals of *P. scariosa* are not long-acuminate. Both are characterized by an obtuse, elliptical, petiolate leaf borne by a well-developed ramicaul. One or a few, long racemes surpass the leaves.

Pleurothallis schlimii Luer, sp. nov.

Ety.: Named for Louis Schlim, nephew of Jean Linden of Ghent, Belgium, collector of numerous species in the nineteenth century.

Species haec *P. acuminatae* (H.B.K.) Lindl. affinis, sed racemis foliis angustissime oblongis plus-minusve brevioribus, sepalis oblongis obtusis, et labelli carinis infra medium marginalibus differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 6-10 cm long, with a long tubular sheath from below the middle and another above the base. **Leaf** erect, thickly coriaceous, narrowly linear-elliptical, acute, 10-18 cm long, 0.5-1 cm wide, cuneate below into a petiole ca. 1 cm long. **Inflorescence** a loose, distichous, simultaneously several-flowered raceme, 4-10 cm long including the peduncle 1-2 cm long, subtended by a narrow spathe ca. 1 cm long from an annulus below the apex of the ramicaul; floral bracts 4 mm long; pedicels 3 mm long; ovary 2.5 mm long; **sepals** presumably yellow, pubescent within above the middle, oblong, obtuse, the dorsal sepal 13 mm long, 3 mm wide, 3-veined, the lateral sepals free, forming a conical mentum below the column-foot, 14 mm long, 3 mm wide, 3-veined; **petals** translucent, oblong, obtuse, 3.25 mm long, 1.25 mm wide, carinate externally along the midvein; **lip** arcuate, oblong-subpandurate, 4.5 mm long, 1.5 mm wide, the apex broadly rounded, the sides broadly rounded and erect below the middle, the disc shallowly concave between a pair of longitudinal, subverrucose calli from near the apex, merging near the middle into the erect margins, the base narrowly subtruncate, delicately hinged to the tip of the column-foot; **column** stout, 2.5 mm long, longitudinally winged and erose at the apex, the foot 2 mm long, the anther, rostellum and stigma ventral.

COLOMBIA: **Santander**: La Baja, Pomplona, alt. 8,000 ft., Jan. 1847, *L. Schlim 1441* (Holotype: W; Isotype: K), C. Luer illustr. 19067.

This species, apparently endemic in the Eastern Cordillera of Colombia, was collected by Louis Schlim near the middle of the nineteenth century. Reichenbach identified it with *P. meridana* in his publication of the latter. Since that time, it lay in the herbaria of K and W identified as the smaller *P. meridana*. Although superficially similar to the latter but with twice larger flowers, *P. schlimii* seems more closely allied to *P. acuminata*. Although the latter is treated herein as morphological variable, *P. schlimii* differs signicantly with oblong, obtuse sepals, instead of acuminate and acute, and a lip with a tall pair of marginal lamellae below the middle. The narrow leaves of *P. schlimii* are very thick, approaching terete.

Pleurothallis sclerophylla Lindl., Bot. Reg. 21: sub t. 1797, 1835.

Ety.: From the Greek *sclerophyllon*, "hard leaf," referring to the coriaceous foliage.

Syn.: *Pleurothallis stenopetala* Lodd. ex Lindl., Bot. Reg. 24: misc. 95, 1838.
Ety.: From the Greek *stenopetalon*, "narrow petal," referring to the petals.

Syn.: *Pleurothallis listrostachys* Rchb.f., Bonplandia 3: 71, 1855.
Ety.: From the Greek *listrostachys*, "a smoothing tool," referring to the inflorescence.

Syn.: *Anathallis secunda* Barb. Rodr., Gen. Spec. Orch. Nov. 2: 72, 1882.
Ety.: From the Latin *secundus*, "secund," referring to the inflorescence.

Syn.: *Humboldtia sclerophylla* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Humboldtia stenopetala* (Lodd. ex Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis urosepala* Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 442, 1899.
Ety.: From the Greek *urosepalon*, "tail-like sepals," referring to the narrow sepals.

Syn.: *Pleurothallis triura* Schltr., Repert. Spec. Nov. Regni Veg. 14: 386, 1916.
Ety.: From the Greek *triura*, "three-tailed," referring to the free, elongated sepals.

Syn.: *Pleurothallis ottonis* Schltr., Repert. Spec. Nov. Regni Veg. 27: 52, 1929.
Ety.: Named in honor of Otto Buchtien, collector of the species.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender to stout, 5-20 cm long, with a tubular sheath below the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 5-14 cm long, 1.5-3.5 cm wide, cuneate below into the petiole 1-2 cm long. **Inflorescence** a loose, subsecund, simultaneously several- to many-flowered

raceme, 10-20 cm long including the peduncle 2-5 cm long, subtended by a spathe ca. 1 cm long, from an annulus 3-5 mm below the apex of the ramicaul; floral bracts 4-5 mm long; pedicels 1-5 mm long; ovary 2-3 mm long; **sepals** pale yellow-green, glabrous externally, shortly pubescent within, subcarinate, narrowly ovate, acute, attenuate, the dorsal sepal 9-20 mm long, 1.5-2.5 mm wide, 3-veined, the lateral sepals free, oblique, forming a mentum below the column-foot, 9-20 mm long, 2-2.5 mm wide, 3-veined; **petals** translucent yellow or green, oblong-obovate, obtuse, 2.5-3 mm long, 1-1.3 mm wide, purple extemally along the thickened midvein, protruding beyond the apex; **lip** yellow or green, more or less suffused with purple, oblong to oblong-obovate, subpandurate, arcuate, 2.5-3 mm long, 0.75-1.5 mm wide, the apex obtuse to round, verrucose, the sides erect below the middle, broadly rounded, with longitudinal, intramural lamellae, and a midline callus between, the base subtruncate, hinged to the column-foot; **column** stout, long-cucullate at the apex, 2.5-4 mm long, the foot thick, 1-2 mm long, the anther and the stigma ventral.

BRAZIL: **Minas Geraës**: Serra de Piedade, *Martius s.n., obs. 1232* (Holotype: M: Isotype: K). Without collection data, obtained by *Messrs. Loddiges s.n.* (holotype of *P. stenopetala*: K). **Rio de Janeiro**: Rodeio, *B. Rodrigues s.n.* (holotype of *P. secunda*: illustr. Rodriguez);without collection data, *A. Glaziou 17786* (BR, C, K); Serra de Tingua, *Schott 4683* (W); near Theresopolis, alt. 1000 m, 20 Oct. 1963, *G.F. Pabst s.n.* (HB, K, M). **Sâo Paulo**: in cupibus campertribus, *Martius s.n.* (M, W); near Campo Grande between Santos and Sao Paulo, alt. 750 m, July 1901, *R. von Wettstein & V. Schniffner s.n.* (W); Campo Grande, Jan. 1895, *Edwall 3054* (BR). **Paraná**: Porto Dom Pedro II, cultivated 16 Mar. 1911, *P. Dusén 11580* (AMES, S), *P. Dusén 13899* (K); Serra do Itatia, Monte Alegre, 23 Nov. 1909, *P. Dusén 9023* (AMES, K, S); Alto da Serra, alt. 800-900 m, 12 Feb. 1929, *L.B. Smith 1862* (AMES); Morretes, Morro Facâozinho, alt. 950 m, 12 Nov. 1950, *G. Hatschbach 1818* (Curitiba, K); Sertus da Lagoa, Ilha de Santa Catarina, 27 Mar. 1951, *G. Pabst 2120* (AMES, HB). **Santa Catarina**: an der Garcia, Blumenau, Apr. 1888, *E. Ule 1318* (BR).

BOLIVIA: **La Paz**: Larecaja, Hacienda Simaco, on the way to Tipuani, alt. 1400 m, Feb. 1920, *O. Buchtien 5012* (holotype of *P. ottonis* destroyed at B; lectotype here designated: AMES, isolectotype: BR, US); Nor Yungas, west of Coroico, alt. 1820, 27 Jan. 1983, *C. Luer, J. Luer & R. Vásquez 8614* (SEL); Saavedra, below Charazani, alt. 2470 m, 20 Nov. 1992, *C. Luer, J. Luer, R. Vásquez et al. 16460* (MO). **Cochabamba**: Sacaba, alt. 2900 m, Oct. 1921, *J. Steinbach 5941* (K).

PERU: **San Martin**: Rioja, Pardo Miguel, Centro Poblado Aguas Verdes, Fila entre La Perla and Nuevo Edén, alt. 1470 m, 25 June 1998, *I. Sánchez V. et al. 9506* (CPUN, MO).

ECUADOR: **Bolívar**: Balzapamba between Babahoho and Guaranda, alt. 650 m, 16 Feb. 1990, *C.H. Dodson, M. Whitten & A. Embree 18685A* (MO); Balzapamba, collected and cultivated in Chamblee, GA, by *F L Stevenson 92-1018-5* (MO). **Pichincha**: "Quito," Pululagua, *W. Jameson 3273* (LE, W); Cuturci-Pifi, alt. 2700 m, *Mille 18* (QPLS); Pieli, Mar. 1900, *A. Sodiro 13* (holotype of *P. triura* destroyed at B, lectotype: BR; isolectotype: QPLS). **Loja**: El Cisne, 30 Oct. 1846, *E. André 4314* (K); Nudo de Sabanilla above Yangana, alt. 2500 m, 3 Apr. 1985, *G. Harling & L. Andersson 23629* (GB). **Pastaza**: near Shell, alt. 1000 m, 21 Mar. 1985, *W. Palacios, D. Neill, M. Baker & J. Zaruma 00217* (MO). **Tungurahua**: Baños, *R. Spruce s.n.* (K); Volcán Tungurahua, alt. 8,000 ft., June 1877, *F.C. Lehmann 79* (W). **Morona-Santiago**: southeast of Mision Bomboiza, alt. 900-1000 m, 24 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 4415* (AAU, K); Cordillera del Condor, east of Guisme, alt. 1500 m, 18 Feb. 1986, *C. Luer, J. Luer, A. Hirtz et al. 11912* (MO). **Zamora-Chinchipe**: Nudo de Sabanilla, east of the pass to Valladolid, alt. 2800 m, 4 Feb. 1985, *G. Harling & L. Andersson 21559* (GB); east of Yangana, alt. 2600 m, Jan. 1986, *D. D'Alessandro 517* (MO).

Mojanda, above Peruchu, alt. 2200-2400 m, *F.C. Lehmann 8197* (AMES).

COLOMBIA: **Santander**: Ocaña, San Pedro, alt. 1,000 ft., Mar. ca. 1850, *H. Wagener 561* (holotype of *P. listrostachys*: W; isotypes: BR, K). **Cundinamarca**: Gachetá-Ubalá highway, alt. 2000 m, 21 June 1947, *O. Haught 5885* (AMES). **Risaralda**: Sta. Rosa de Cabal, alt. 1980 m, 25 July 1986, *J. Wolf 1277* (CO, MO). **Cauca**: near Popayán, alt. 6,000 ft., 18 Nov. 1878, *F.C. Lehmann s.n.* (W); highlands of Popayán, alt. 1800-2000 m, 10 Nov. 1885, *F.C. Lehmann 6065* (holotype of *P. urosepala*: K; isotypes: AMES, HB, NY, US, W); Highlands of Popayán, alt. 1600-2000 m, without date, *K.C. Lehmann B.T.348* (AMES).

VENEZUELA: Without locality, *L. Schlim 503* (W). "Caracas," *Wagener s.n.* (W); Caracas, Galigran, June 1846, *L. Schlim s.n.* (K). **Aragua**: Colonia Tovar, 1854-56, *A. Fendler 2153* (K); near Colonia Tovar on Choroni road, alt. 7,000 ft., *G.C.K. Dunsterville 373*. **Bolívar**: south of El Dorado, alt. 800 m, 21 Dec. 1963, *J.A. Steyermark & G.C.K. Dunsterville 92176* (AMES, VEN); Mt. Roraima, alt. 2100-2620 m, 28 Sept. 1944, *J.A. Steyermark 58922* (AMES, VEN). **Amazonas**: Cerro Yapacana, alt. 1000-1200 m, 5 May 1970. *J.A. Steyermark & G. Bunting 103142* (AMES, K, M, VEN, W). **Mérida**: between Mucuchachí and Canaguá, alt. 1065-1820 m, 6 May 1944, *J.A. Steyermark 56329* (AMES, VEN).

GUYANA: Mt. Roraima Expedition, 16 Dec.1884, *E.F. in Thurn 250* (K); Kaieteur, 29 Dec. 1948, *J.D. Atkinson 32* (K); Upper Mazaruni District, south of mouth of Waruma River, 13 Apr. 1972, *D. Philcox 6251* (K).

This relatively common species is variable in its wide distribution through the Andes into southern Brazil. No two populations are exactly alike. In Central America it is replaced by *P. dolichopus*, a very similar species, but the tricarinate lip and a shortly beaked column distinguish the latter.

Pleurothallis sclerophylla is characterized by a well-developed ramicaul and an obtuse, elliptical, petiolate leaf far surpassed by a multiflowered raceme of whitish, medium-sized flowers with the three, free, slender, long-attenuate and widely spreading sepals. They vary in length and width, and in the degree of pubescence. The petals are small and obtuse with the midvein carinate and purple externally. The lip varies considerably, but intramural lamellae are always present below the middle with a prominent central carina. The apex of the column is elongated, approaching the long-beaked column seen in an ally, *P. rubens*.

Pleurothallis soratana Rchb.f., Xenia Orch. 3: 25, 1900.

Ety.: Named for the community of Sorata where the species was collected.

Syn.: *Humboldtia soratana* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2:668, 1891.

Plant medium in size, epiphytic, long-repent, the rhizomes 3.5-5 cm between ramicauls; roots coarse. Ramicauls ascending-erect, slender to stout, 5-6.5 cm long, with a tubular sheath above the middle and a tubular sheath below the middle. **Leaf** erect, coriaceous, broadly elliptical, obtuse to rounded at the apex, petiolate, 4-5.5 cm long including the 0.8-1.2 cm long petiole, 1.9-2.2 cm wide, cuneate below into the petiole. **Inflorescence** a loose, subsecund, simultaneously 2- to 3-flowered raceme, 1.5-3 cm long including the peduncle ca. 1 cm long, subtended by a spathe 0.5 cm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts 4 mm long; pedicels 5 mm long; ovary 3 mm long; **sepals** pale yellow, glabrous externally, minutely pubescent within, subcarinate, narrowly ovate, acute, the dorsal sepal 10.5 mm long, 3 mm wide, 3-veined, the lateral sepals free, oblique, forming a mentum below the column-foot, 10 mm long, 3 mm wide, 3-veined; **petals** translucent yellow with purple midvein, elliptical-oblong, obtuse, 5.25 mm long, 2.75 mm wide, 3-veined, carinate externally along the midvein; **lip** white, suffused with rose, oblong-obovate, arcuate, 5.5 mm long, 2.5 mm wide, the apex narrowly rounded, microscopically cellular-verrucose, the disc with a pair of longitudinal calli the length of the lip, joining at the apex, with a lesser midline callus above the middle, the base subtruncate, hinged to the column-foot; **column** stout, longitudinally winged, 4 mm long, the foot thick, spotted, 2 mm long, the anther and the stigma ventral.

BOLIVIA: **La Paz**: Larecaja, vicinity of Sorata, Coocoo near Aucouma, Nov. 1860, *G. Mandon 1146* (Holotype: W); Nor Yungas, below Unduavi, alt. 2950 m, 29 Jan. 1980, *C. Luer, J. Luer & R. Vásquez 5043* (SEL); Saavedra, Charazani, east of Chullina, alt. 3300 m, 8 Jan. 1994, *B. Herzog 198* (LZ).

This species is distinguished from the numerous close allies by the long-repent habit. The broadly elliptical leaves are shorter than the ramicauls. The inflorescence is a short, few-flowered raceme from the base of the petiolate leaf. The three free sepals are narrowly ovate and the petals are elliptical with a rounded apex. The lip is elliptical with parallel calli that meet at the minutely verrucose apex.

Pleurothallis spathilabia Schltr., Repert. Spec. Nov. Regni Veg. Beih. 2: 56, 1924.

Ety.: From the Latin *spathilabius*, "with spathulate lip," referring to the labellum.

Plant medium in size, epiphytic, shortly repent to caespitose; roots slender. Ramicauls erect, slender, 5-8.5 cm long, with a tubular sheath below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, broadly elliptical, obtuse to rounded at the apex, petiolate, 4.5-8 cm long including the 1-1.5 cm long petiole, 2.2-3.5 cm wide, cuneate below into the petiole. **Inflorescence** 1 or 2 loose, subsecund, simultaneously several to many-flowered racemes, 11-18 cm long including the peduncle ca. 5 cm long, subtended by a spathe 0.5 cm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts 3 mm long; pedicels 3 mm long; ovary 1 mm long; **sepals** pale yellow-green, glabrous, minutely ciliate, subcarinate, ovate, acute, the dorsal sepal 7 mm long, 3 mm wide, 3-veined, the lateral sepals free, oblique, forming a shallow mentum below the column-foot, 6 mm long, 2.75 mm wide, 3-veined; **petals** translucent yellow, oblong, obtuse, retuse, 3.5 mm long, 1.5 mm wide, 1-veined, the midvein thickened below the middle; **lip** pale yellow, oblong-obovate, arcuate, 3.5 mm long, 2.25 mm wide, the apex broadly rounded, the disc with a pair of low, longitudinal calli below the middle, the base subtruncate, hinged to the column-foot; **column** stout, 1.5 mm long, the foot equally long, the anther and the stigma ventral.

COLOMBIA: **Nariño**: on trees and rocks at Chachatoy, near Pasto, alt. 2300 m, Nov. 1921, *W. Hopp 117* (Holotype destroyed at B).
ECUADOR: **Manabí**: Montecriste, epiphytic in seasonally dry forest, alt. ca. 500 m, 27 Feb. 1977, *C. Luer & J. Luer 1587* (SEL).

This infrequent species known from southern Colombia and northern Ecuador, is distinguished by the broadly elliptical, obtuse leaves surpassed by twice longer subsecund, many-flowered raceme. The sepals are ovate, acute and minutely ciliate; the petals are oblong and retuse at the apex; and the lip is broadly obovate, pyriform, or spathulate, with a broadly rounded, featureless apex.

Pleurothallis spathuliformis Luer & Vásquez, sp. nov.

Ety.: From the Latin *spathuliformis*, "spathulate," referring to the petals and lip.

Species haec *P. acuminatae* (H.B.K.) Lindl., affinis sed habitu minore et petalis spathuliformibus apice rotundatis differt.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 2.5-6 cm long, with 2-3 tubular sheaths below the middle and at the base. **Leaf** erect, coriaceous, elliptical, obtuse to rounded at the apex, 3-6.5 cm long, 1-1.2 cm wide, cuneate below into a petiole ca. 5 mm long. **Inflorescence** a subcongested, secund, simultaneously several-flowered raceme, 5-11 cm long including the peduncle 1.5-2.5 cm long, subtended by a narrow spathe 8 mm long from an annulus below the apex of the ramicaul; floral bracts 2-4 mm long; pedicels 4 mm long; ovary 3 mm long; **sepals** dull white, shortly pubescent within, the dorsal sepal narrowly ovate, narrowly obtuse to acute, 12-14 mm long, 2.5-3 mm wide, 3-veined, the lateral sepals free, oblique, forming a small mentum below the column-foot, 14-15 mm long, 2.75 mm wide, 3-veined; **petals** translucent white, spathulate, rounded at the apex, 5 mm long, 2 mm wide, narrowly veined to either side of the midvein; **lip** red, arcuate, oblong-obovate, 5.5 mm long, 1 mm wide, the apex expanded, broadly rounded, smooth, the disc with a pair of erect, longitudinal calli below the middle, with a low, midline callus between, the base truncate, hinged to the tip of the column-foot; **column** red, stout, 4 mm long, the foot 3 mm long, the anther, rostellum and stigma ventral.

BOLIVIA: **Cochabamba**: below Cocapata, alt. 2630 m, 5 Feb. 1997, *C. Luer, J. Luer, R. Vásquez, D. Ric & W. Teague 18395* (Holotype: MO); Chapare, northeast of Cochabamba toward Villa Tunari, alt. 2900 m, 22 Jan. 1980, *C. Luer, J. Luer & R. Vásquez 4907* (SEL); same area, alt. 2600 m, 6 Jan. 1994, *S. Dalström & J. Sönnemark 2014* (MO), C. Luer illustr. 19069.

This species, endemic in central Bolivia, is related to *P. acuminata*. It differs from the latter by a smaller habit with shorter racemes. The very similar flowers are distinguished by spathulate petals that are rounded at the apex, and the spathulate lip with a low, midline callus between the lateral pair. The apex is free of any verrucosities.

Pleurothallis stenophylla Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 442, 1899.

Ety.: From the Greek *stenophyllon*, "narrow leaf," referring to the foliage.

Syn.: *Pleurothallis melanopus* Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 443, 1899.
Ety.: From the Greek *melanopous*, "black foot," referring to a dark color of the ramicauls.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-12 cm long, with a tubular sheath near the middle and 2-3 other sheaths at the base. **Leaf** erect, thickly coriaceous, narrowly elliptical, acute to subacute, petiolate, 4-12 cm long, 0.5-1 cm wide, narrowly cuneate below into the base. **Inflorescence** a loose, subsecund, simultaneously several-flowered raceme, 4-11 cm long including the peduncle 1-2 cm long, subtended by a spathe 5 mm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts 2 mm long; pedicels 2-3 mm long; ovary 1.75-3 mm long; **sepals** light yellow-green, glabrous externally, minutely short-pubescent within, subcarinate, narrowly ovate, acute, the dorsal sepal 7-10 mm long, 1.75-2.5 mm wide, 3-veined, the lateral sepals free, oblique, forming a mentum below the column-foot, 7-10 mm long, 3 mm wide, 3-veined; **petals** translucent yellow with purple midvein, oblong, obtuse, 2-4 mm long, 1-1.4 mm wide, 3-veined, carinate externally along the midvein; **lip** white, oblong, subpandurate when the sides are recurved near the middle, arcuate, 2-5 mm long, 1-2.5 mm wide, the apex obtuse to round, the margins microscopically erose, the disc shallowly sulcate between a pair of longitudinal calli along the middle two-thirds of the lip, the base subtruncate, hinged to the column-foot; **column** slender, longitudinally winged, 2 mm long, the foot 1 mm long, the anther and the stigma ventral.

COLOMBIA: **Cauca**: El Pedregal and Inza, Central Andes of Popayán, alt. 1500-1800 m, *F.C. Lehmann 4515* (Holotype: K; Isotype: US), C. Luer illustr. 17009; Highlands of Popayán, alt. 1600-2000 m, *B.T. 324, 325* (AMES, K, W), C. Luer illustr. 16394; highlands of Popayán. alt. 1600-2200 m, *F.C. Lehmann 7139* (AMES, K); Capilla above Popayán, *F.C. Lehmann B.T.327* (AMES); near Popayán, alt. 1700 m, collected and cultivated in Itagüi by B. Pineda, 29 Dec. 1992, *R. Escobar 5157* (MO), C. Luer illustr. 16613. **Antioquia**: Urrao, collected and cultivated by Rogelio Londoño, 20 Mar. 1989, *C. Luer 14317* (MO). **Risaralda**: collected near Pereira, flowered in cultivation by S. Tsubota, 10 May 1993, *C. Luer 16762* (MO).
BOLIVIA: **Cochabamba**: Chapare, between Cochabamba and Villa Tunari, alt. 1900 m, 15 Jan. 1988, *C. Luer, J. Luer, R. Vásquez et al. 12841* (MO)

This species, first collected in southern Colombia, is distinguished by loosely-floweed racemes about as long as thick leaves that are less than one centimeter wide. The flowers are smaller but similar to those of *P. acuminata* with acute, narrowly acuminate-triangular leaves. Published one page after that of *P. stenophylla*, the desciption of *P. melanopus*, from an unknown locality and without an extant type, can also be applied to this species.

Pleurothallis unduavica Luer & Vásquez, Phytologia 46: 372, 1980.
Ety.: Named for Unduavi, a river and a town near where this species was first collected.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2.5-4 cm long, with a tubular sheath near the middle and 2-3 other sheaths about the base. **Leaf** erect, gray-green, thickly coriaceous without a visible midrib, elliptical, subacute to obtuse, petiolate, 4-6.5 cm long, 1.3-1.5 cm wide, narrowly cuneate below into the petiole 0.5-1.5 cm long. **Inflorescence** a subcongested, distichous, simultaneously several-flowered raceme, 10-14 mm long including the peduncle 3-4 cm long, subtended by a spathe 5-6 mm long, from an annulus 2-3 mm below the apex of the ramicaul; floral bracts 1.5 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** translucent light yellow, glabrous externally, pubescent within, subcarinate, narrowly ovate, acute, the dorsal sepal 6 mm long, 2.2 mm wide, 3-veined, the lateral sepals free, oblique, forming a shallow mentum below the column-foot, 6 mm long, 2 mm wide, 3-veined; **petals** translucent yellow, speckled with purple, oblong-obovate, rounded and denticulate-erose at the apex, 3 mm long, 1.5 mm wide, purple along the midvein; **lip** yellow with a purple, midline carina, oblong to oblong-obovate, subpandurate, 3.5 mm long, 1.5 mm wide, the apex expanded, broadly rounded, minutely verrucose centrally, thickened below the isthmus with broadly rounded, erect margins, the disc with a pair of yellow, denticulate crests along the middle third, and a long, central, purple lamella, the base truncate, hinged to the column-foot; **column** slender, speckled with red, the apex non-cucullate, 1.8 mm long, the foot 1 mm long, the anther and the stigma ventral.

BOLIVIA: **La Paz**: Sud Yungas, cloud forest below Unduavi, alt. 2450 m, 6 Feb. 1980, *C. Luer, J. Luer, R. Vásquez & M. Manon 5206* (Holotype: MO).

This species, apparently endemic in north-central Bolivia, is related to the widely distributed *P. rubens*, but most closely allied to *P. coripatae*. The lips of all three are basically similar. From *P. rubens* it is distinguished by the column that lacks the protruding margin beyond the anther. From *P. coripatae* it is distinguished by the denticulate lamellae within the margins of the lip. From both the above it is distinguished by the serrulate margins of the petals.

Pleurothallis vasquezii Luer, Phytologia 49: 220, 1981.
Ety.: Named in honor of Roberto Vásquez Chávez of Santa Cruz, Bolivia, collector of this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls descending, slender, 6-13 cm long, with a tubular sheath below the middle and 2-3 other sheaths at the base. **Leaf** pendent, thickly coriaceous, narrowly linear-elliptical, slightly curving upward, acute, 8-13 cm long, 0.7-1 cm wide, narrowly cuneate into the sessile base. **Inflorescence** pendent, 2-3 subcongested, subflexuous, simultaneously few-flowered racemes, 3-5 cm long including the peduncle ca. 1 cm long, subtended by a spathe 5 mm long, from the apex of the ramicaul; floral bracts 2-2.5 mm long; pedicels 4 mm long; ovary dark green, speckled with black, 4 mm long; **sepals** light green with black dots, glabrous externally, shortly pubescent within, subcarinate, narrowly ovate, acute to narrowly obtuse, the dorsal sepal 13 mm long, 3 mm wide, 3-veined, the lateral sepals free, oblique, forming a mentum below the column-foot, 12 mm

long, 2.75 mm wide, 3-veined; **petals** translucent light green, oblong-obovate, rounded at the apex, 4 mm long, 1.5 mm wide, 3-veined, subcarinate externally; **lip** greenish white, obovate, arcuate, subunguiculate, 4.5 mm long, 1.5 mm wide, the apex broadly rounded with the margin cellular-glandular, the disc with a low, longitudinal callus flanked by a pair of parallel, purple stripes, the basal third narrowed, hinged to the column-foot; **column** greenish white with thin, purple margins, slender, 3.5 mm long, the foot 3 mm long, the anther and the stigma ventral.

BOLIVIA: **La Paz:** Inquisivi, cloud forest between Inquisivi and Circuata, alt. 2550 m, 29 Jan. 1981, *C. Luer, J. Luer & R. Vásquez 5971* (Holotype: SEL).

This species, apparently endemic in north-central Bolivia, is unique in the subgenus with narrow, pendent leaves that curve slightly upward. The short, few-flowered racemes are also pendent. Although the relatively large green, black-dotted flowers are basically similar to those of the other species they are distinguished by the obovate, subunguiculate lip with a central carina flanked by a purple stripe on each side.

BINOMIALS IN SUBGENUS *ACUMINATIA* ENDEMIC IN BRAZIL

Pleurothallis attenuata Rolfe
Pleurothallis barboselloides Hoehne, non Schltr. 1922 = **P. piratiningana**
Pleurothallis bocainensis Porto & Brade = **P. attenuata** Rolfe
Pleurothallis bupleurifolia Porsch = **P. depauperata**
Pleurothallis convallium Kraenzl. = **P. linearifolia**
Pleurothallis convergens R.C.J.Gerard = **P. linearifolia**
Pleurothallis depauperata Cogn. = **P. linearifolia**
Pleurothallis eugenii Pabst = **P. linearifolia**
Pleurothallis gert-hatschbachii Hoehne
Pleurothallis glossochila Kraenzl. = **P. linearifolia**
Pleurothallis handroi Pabst = **P. piratiningana**
Pleurothallis heterophylla (Barb.Rodr.) Cogn.
Pleurothallis hoehnei Schltr. = **P. heterophylla**
Pleurothallis linearifolia Cogn.
Pleurothallis malmeana Dutra
Pleurothallis margaritifera Schltr. = **P. linearifolia**
Pleurothallis nectarifera (Barb.Rodr.) Cogn.
Pleurothallis pabstii Garay
Pleurothallis petersiana Schltr.
Pleurothallis piratiningana Hoehne
Pleurothallis pubipetala Hoehne
Pleurothallis racemosa var. *minor* Cogn. = ?
Pleurothallis radialis C.Porto & Brade
Pleurothallis rigidula Cogn. = **P. linearifolia**
Pleurothallis simpliciglossa Loefgren
Pleurothallis spannageliana Hoehne
Pleurothallis vestita Kraenzl., unknown origin
Pleurothallis ypirangae Kraenzl.

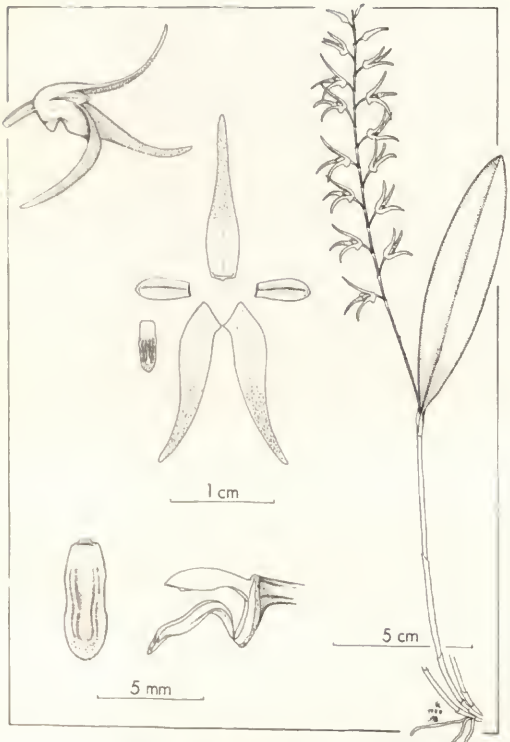


Fig. 1. Pleurothallis acuminata

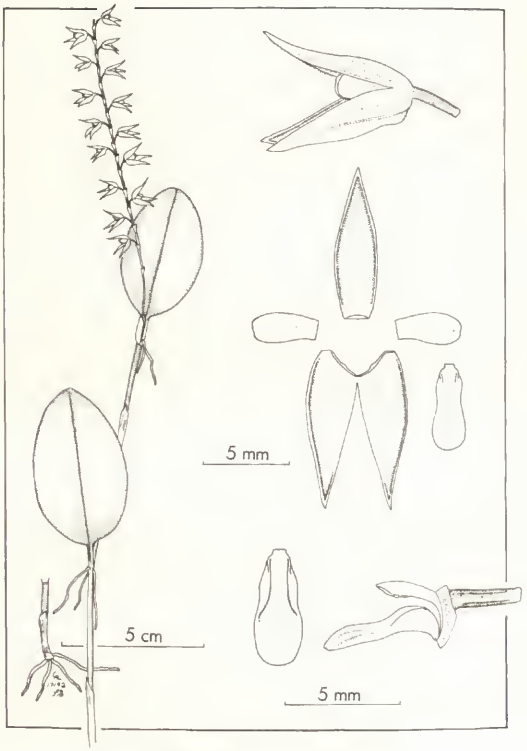


Fig. 2. Pleurothallis anderssonii

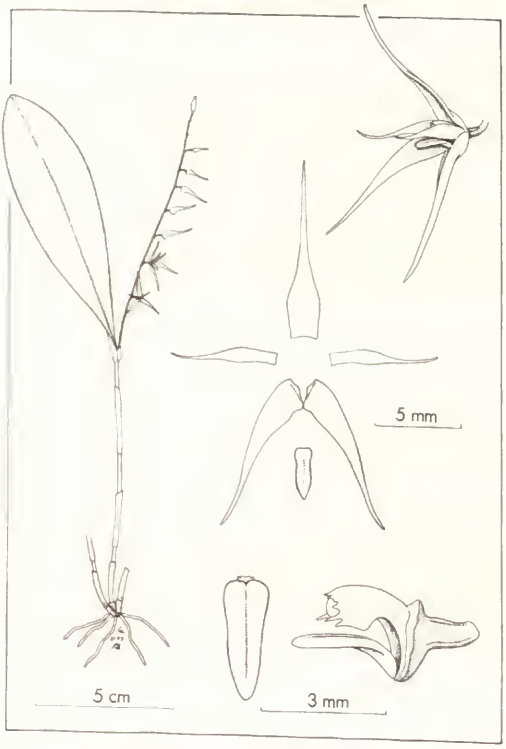


Fig. 3. Pleurothallis angustilabia

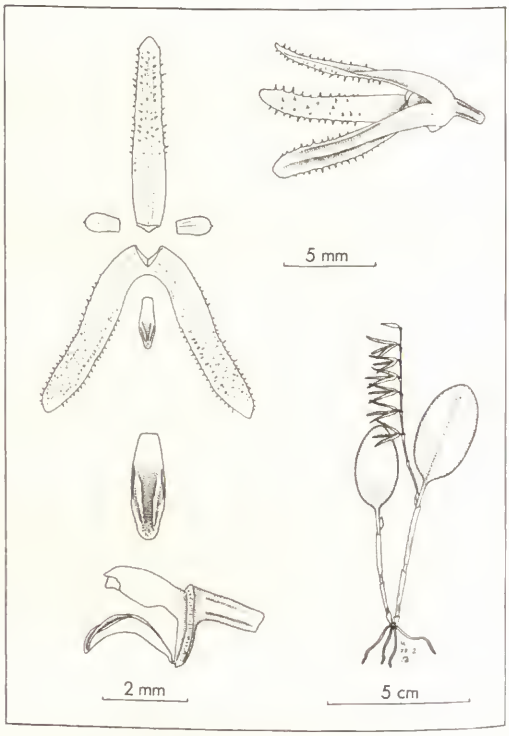


Fig. 4. Pleurothallis ariasii

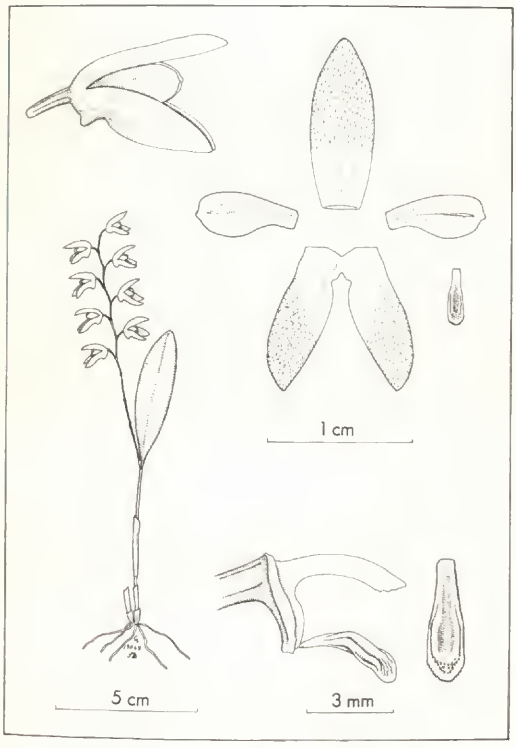


Fig. 5. Pleurothallis asperilinguis

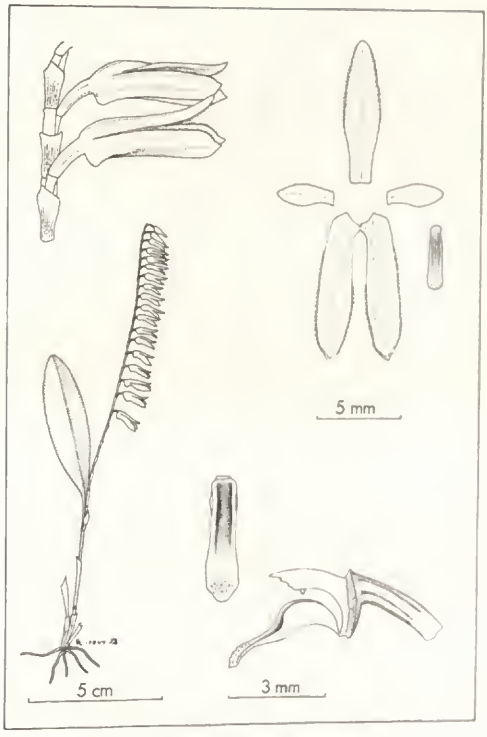


Fig. 6. Pleurothallis candida

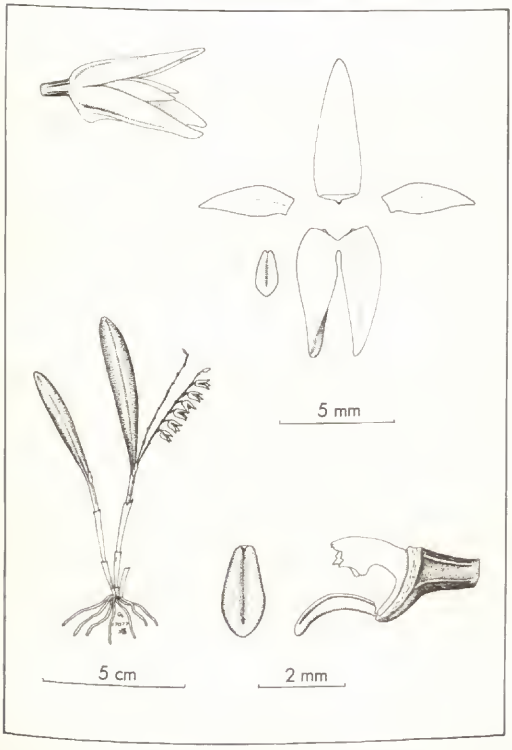


Fig. 7. Pleurothallis carnosifolia

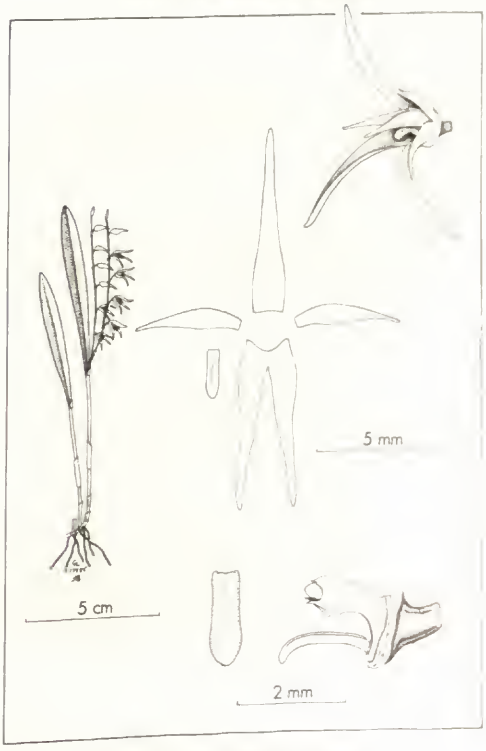


Fig. 8. Pleurothallis citrina

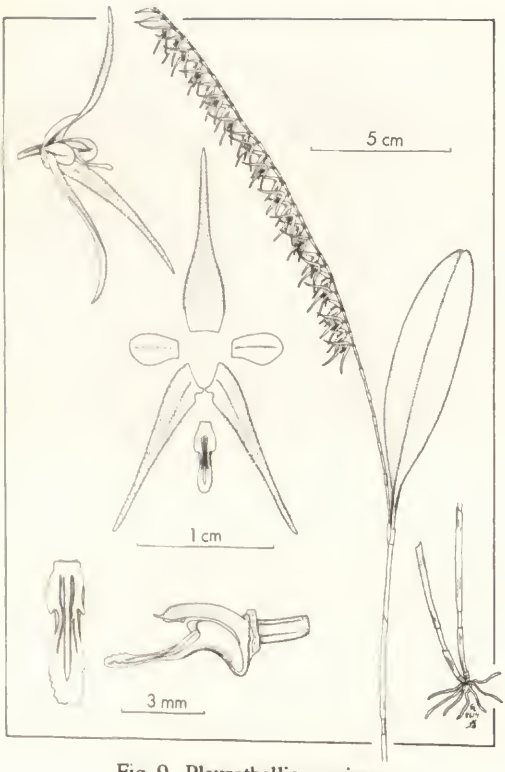


Fig. 9. Pleurothallis concinna

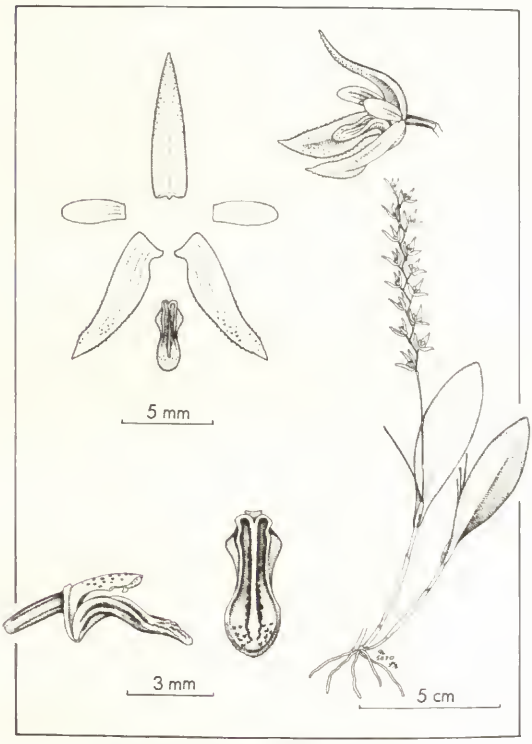


Fig. 10. Pleurothallis coripatae

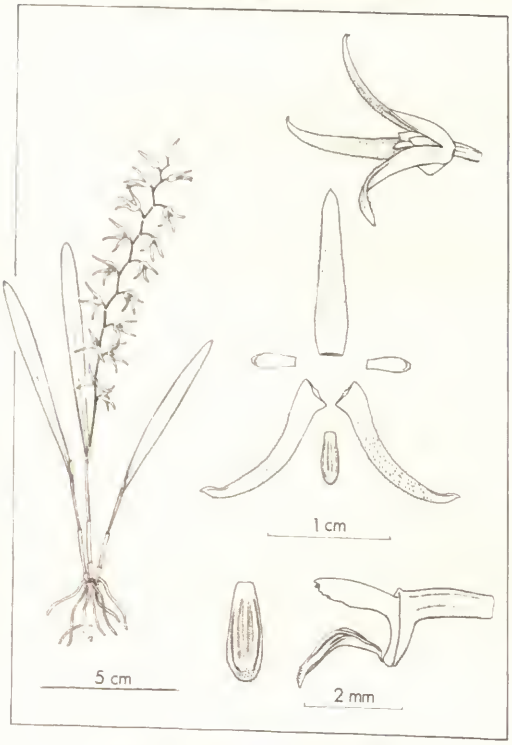


Fig. 11. Pleurothallis dimidia

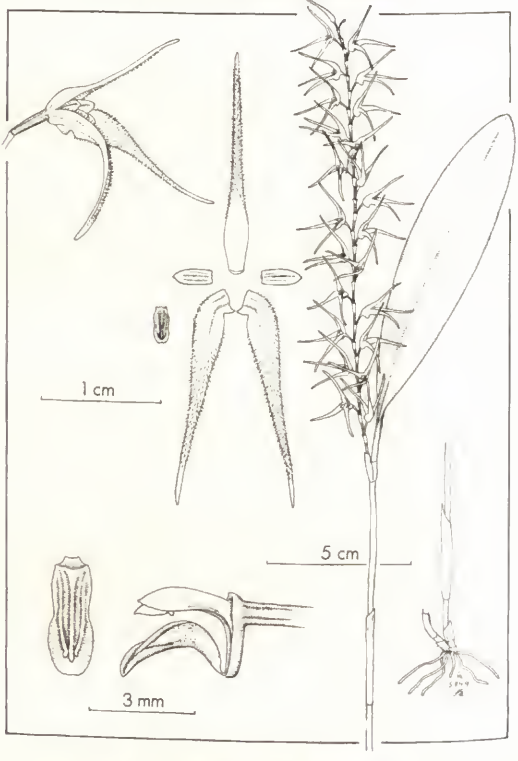


Fig. 12. Pleurothallis dolichopus

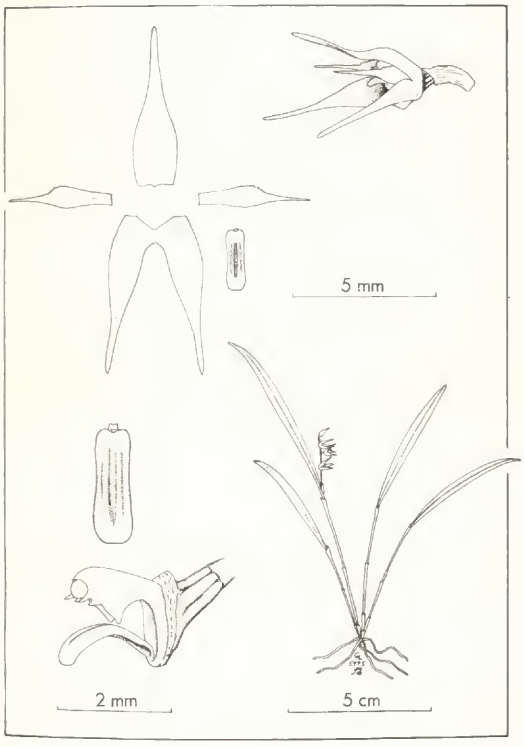


Fig. 13. Pleurothallis gracilenta

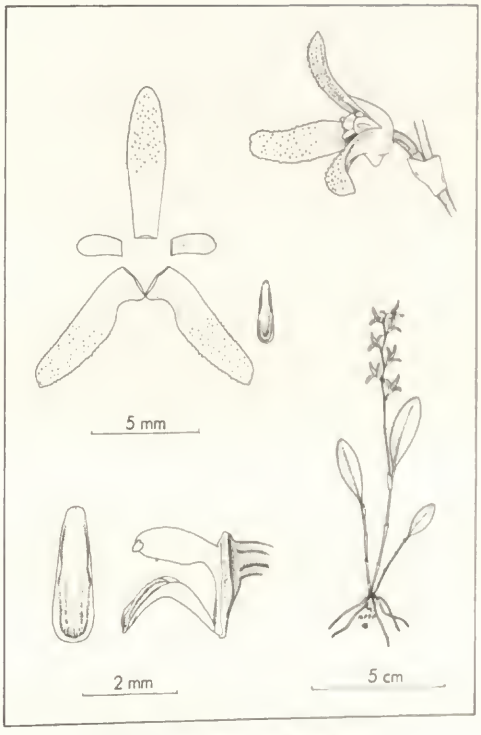


Fig. 14. Pleurothallis jesuiorum

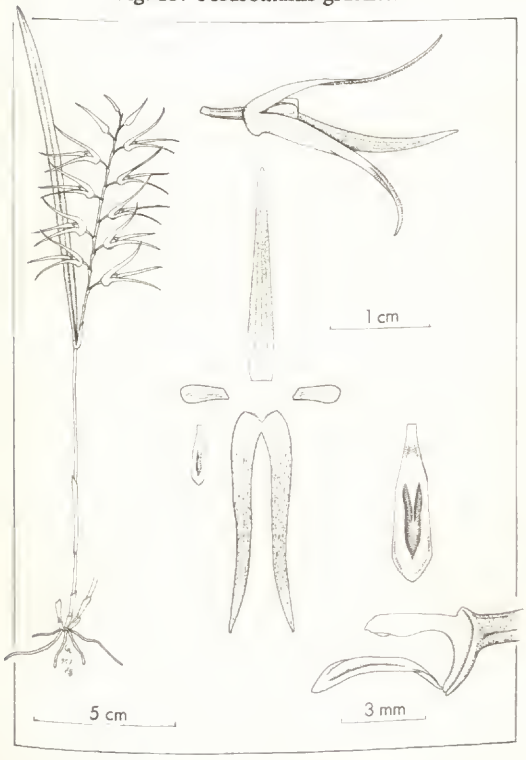


Fig. 15. Pleurothallis lagarophyta

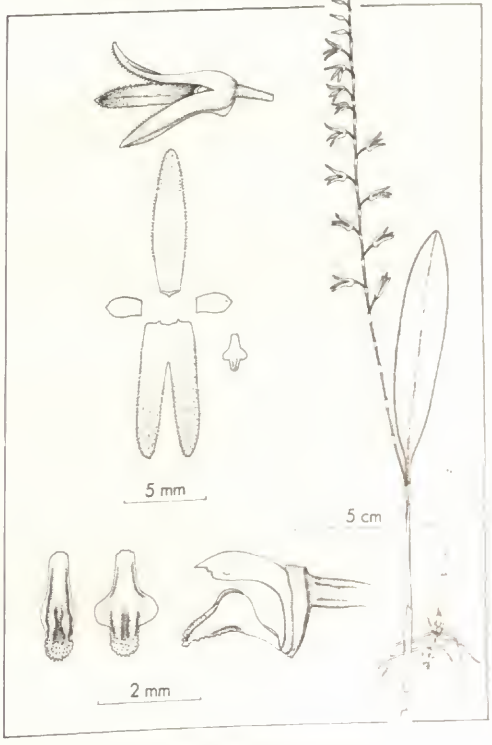


Fig. 16. Pleurothallis maguirei

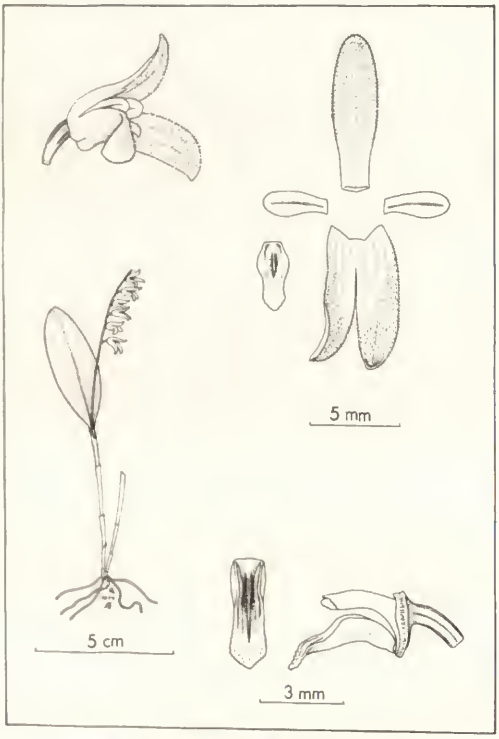


Fig. 17. Pleurothallis mediocarinata

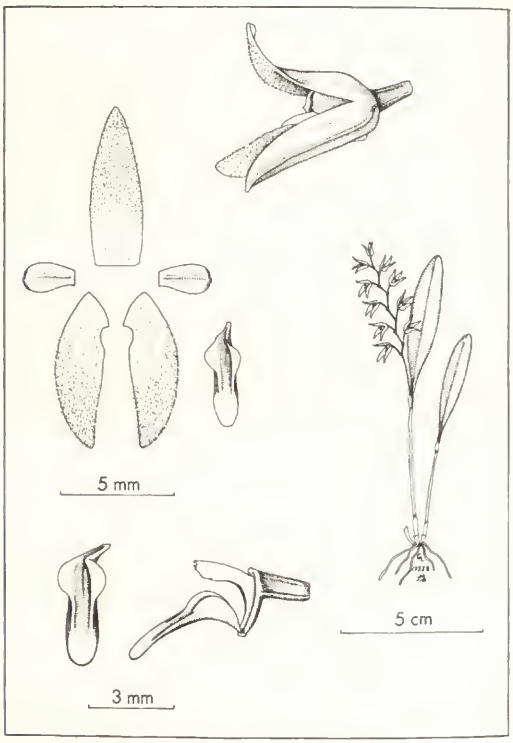


Fig. 18. Pleurothallis meridana

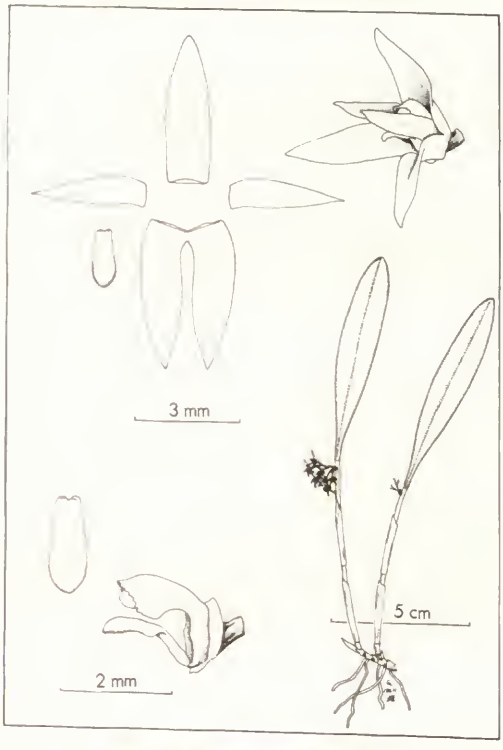


Fig. 19. Pleurothallis obovata

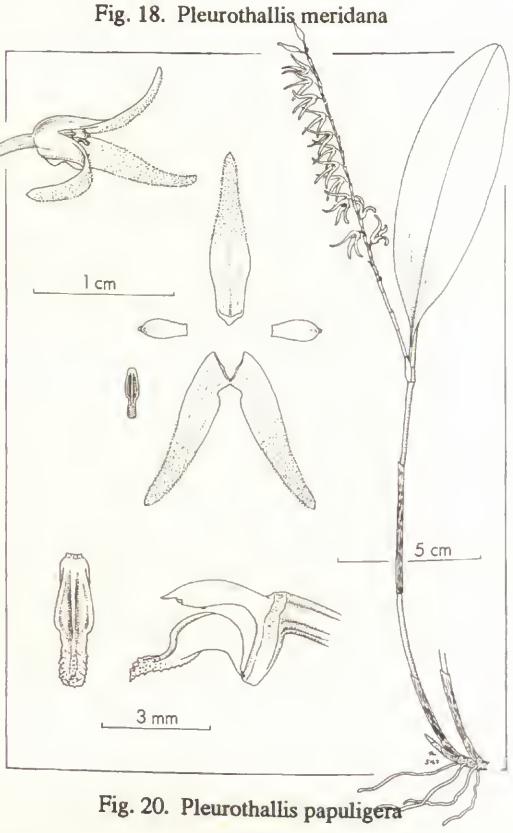


Fig. 20. Pleurothallis papuligera

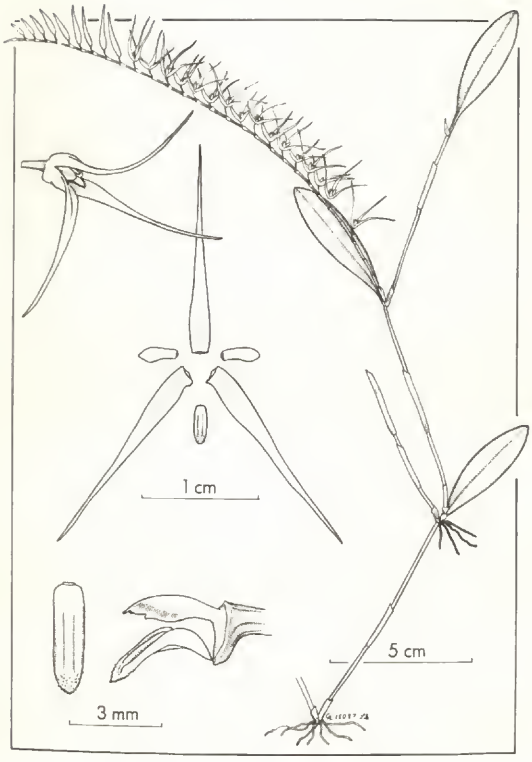


Fig. 21. Pleurothallis ramulosa

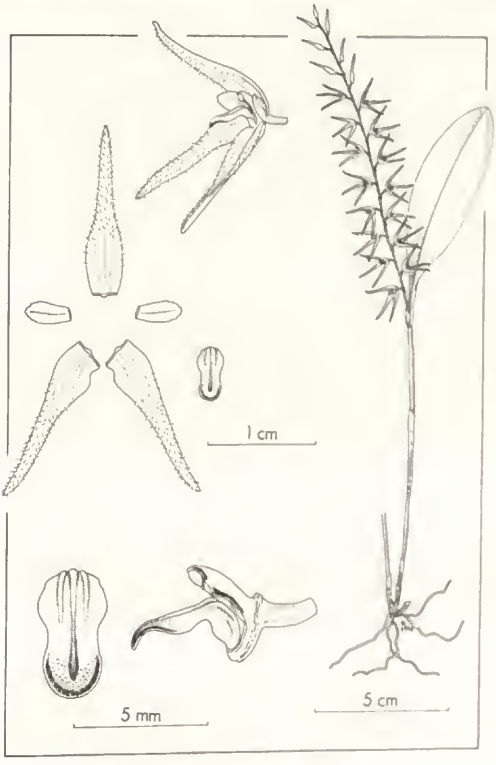


Fig. 22. Pleurothallis regalis

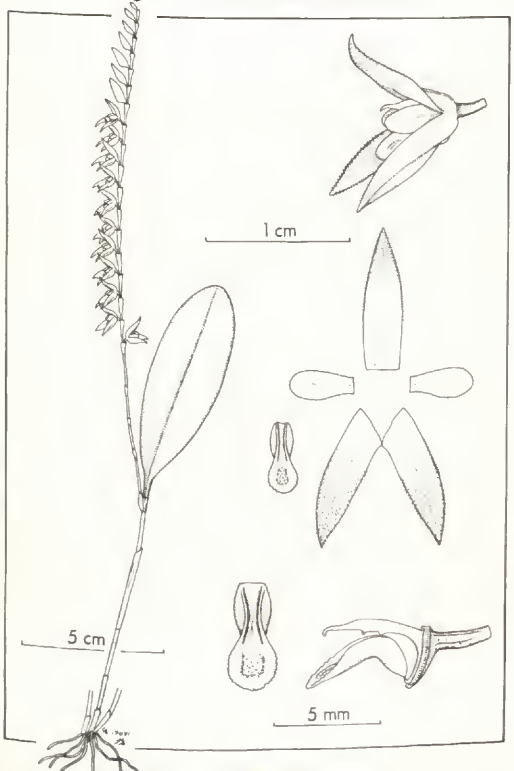


Fig. 23. Pleurothallis rubens

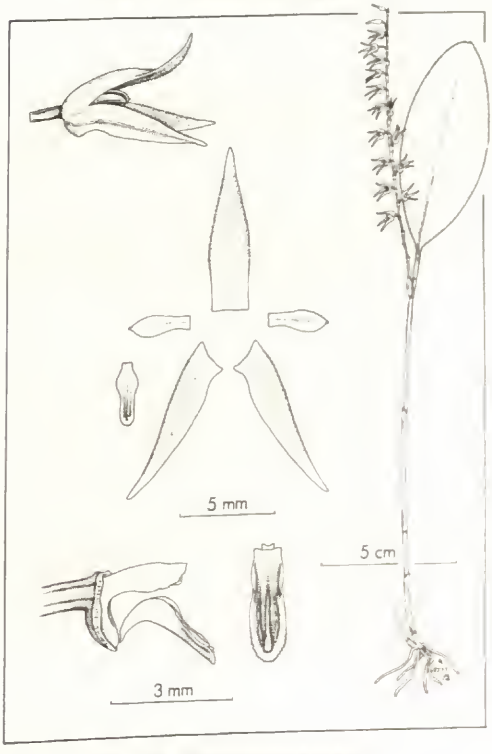


Fig. 24. Pleurothallis scariosa

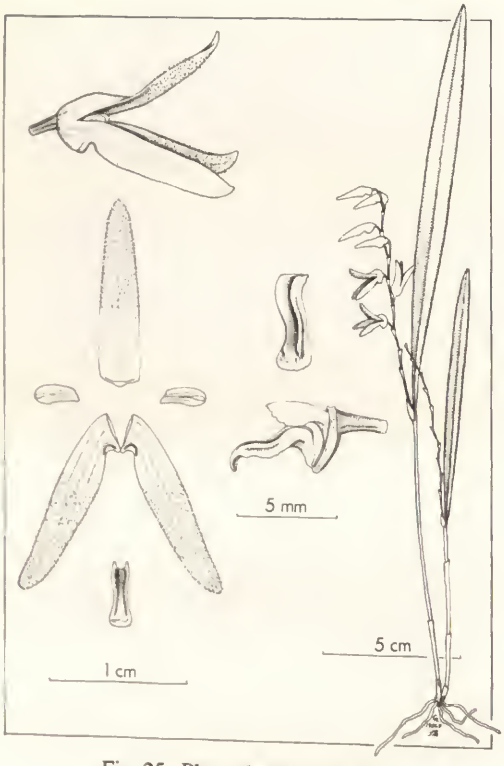


Fig. 25. Pleurothallis schlimii

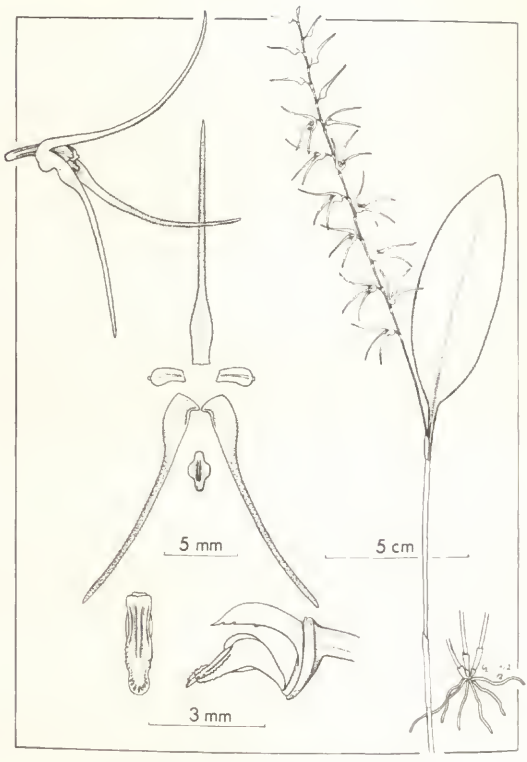


Fig. 26. Pleurothallis sclerophylla

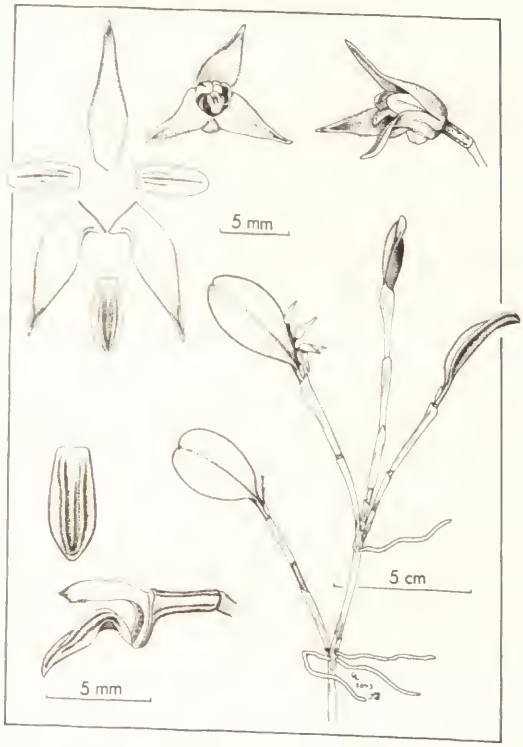


Fig. 27. Pleurothallis soratana

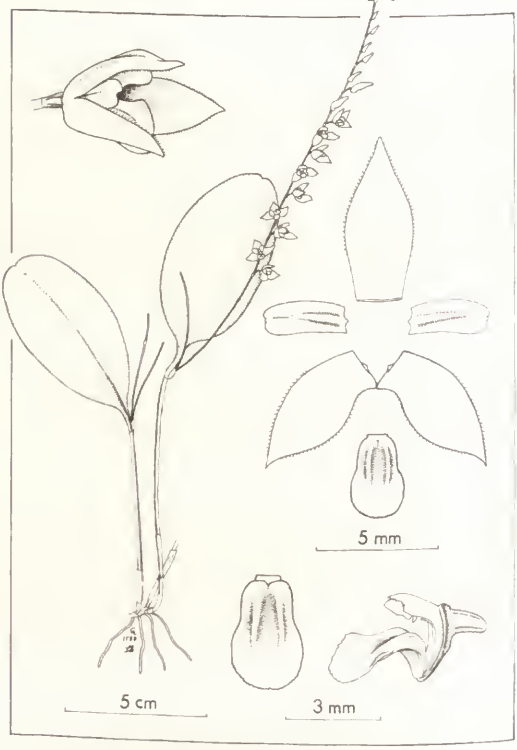


Fig. 28. Pleurothallis spathilabia

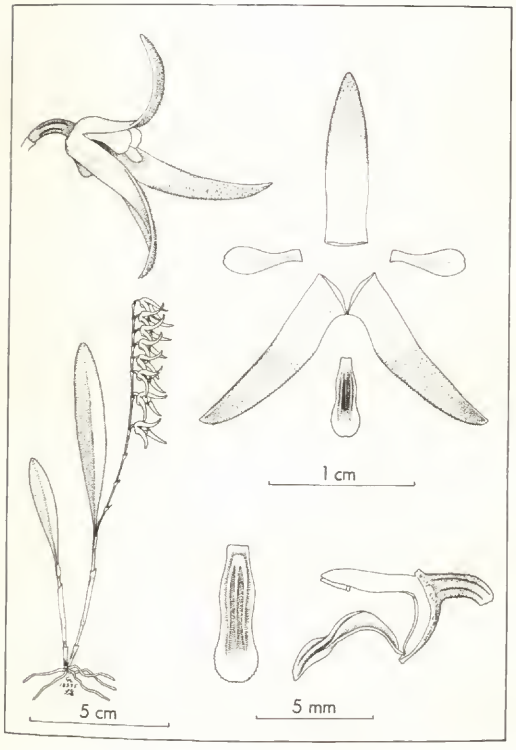


Fig. 29. Pleurothallis spathuliformis

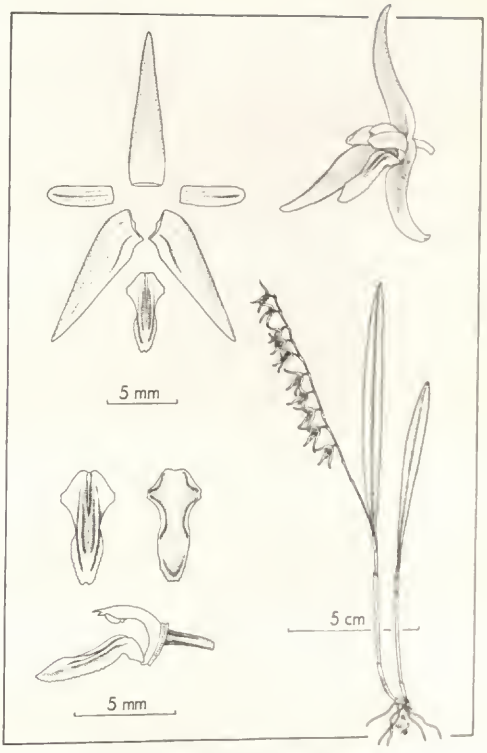


Fig. 30. Pleurothallis stenophylla

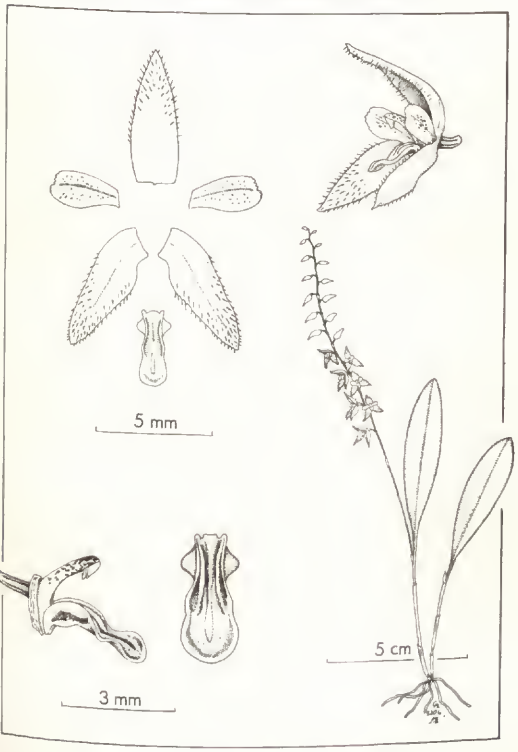


Fig. 31. Pleurothallis unduavica

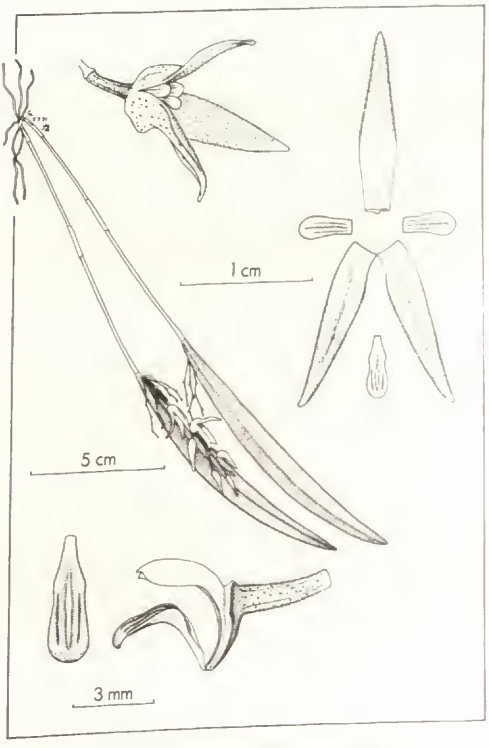


Fig. 32. Pleurothallis vasquezii

INDEX OF SCIENTIFIC NAMES
of subgenus *Acuminatia* north of Brazil

Anathallis 97, 98
  densiflora 114
  fasciculata 97, 98, 114
  micrantha 114
  osmosperma 114
  racemosa 97, 103
  secunda 120
Dendrobium 119
  acuminatum 97, 98, 103
  scariosum 119
Humboldtia acuminata 103
  asperilinguis 106
  aurea 103
  obovata 114
  rubens 118
  scariosa 119
  sclerophylla 120
  soratana 122
  stenopetala 120
Myoxanthus 97
Platystele 97
Pleurothallis 97, 99
  subgen. Acianthera 97
  subgen. Acuminatia 97, 98, 99, 101, 125
  subgen. Effusoria 97
  subgen. Specklinia 97
  sect. Acuminatae 97, 98, 99, 101, 112
    "subsect." Lepanthiformes 97
  sect. Alatae 97, 98, 99, 101, 112
  sect. Anathallis 97, 98
  sect. Margaritifera 98
Pleurothallis acuminata 97, 98, 99, 101, 102, **103**, 104, 107, 109, 111, 114, 116, 119, 120, 123, 124, Fig. 1.
  albida 99, 114
  amblyopetala 99, 118
  anderssonii 99, 101, **105**, Fig. 2.
  angustilabia Hoehne & Schltr. 99, 108
  angustilabia Schltr. 99, 102, **105**, 106, Fig. 3.
  angustipetala 99, 103, 104
  ariasii 99, 101, **106**, Fig. 4.
  asperilinguis 99, 102, **106**, 107, Fig. 5.
  aurea 99, 103
    var. asperilinguis 99, 106
  brachyantha 99, 108
  brittonii 99, 103, 104
  candida 99, 101, **107**, Fig. 6.
  camosifolia 99, 102, **107**, Fig. 7.
  citrina 98, 99, 102, 106, **108**, 116, Fig. 8.
    var. elliptica 99, 105
  concinna 99, 102, **109**, Fig. 9.
  coripatae 99, 102, **109**, 124, Fig. 10.
  dendrophila 99, 114
  densiflora 99, 108, 115
    var. parvifolia 99, 115
  dimidia 97, 99, 101, 104, **109**, Fig. 11.
  Pleurothallis dolichopus 99, 102, **110**, 111, 119, 122, Fig. 12.
    var. bradeorum 99, 110
  excisa 100, 118
  fasciculata 100, 115
  gracilenta 100, 102, **111**, Fig. 13.
  guentheri 100, 108
  jesupiorum 100, 101, 106, **112**, Fig. 14.
  lagarophyta 100, 101, 104, **112**, Fig. 15.
  lamprophylla 100, 110
  listrostachys 100, 120
  maguirei 97, 100, 101, **113**, Fig. 16.
  margaritifera 98
  mediocarinata 100, 101, 112, **113**, Fig. 17.
  melanopus 100, 123, 124
  meridana 100, 102, **114**, 120, Fig. 18.
  minutiflora 100, 115
  modestiflora 100, 115
  montserratii 100, 118
  nigro-hirsuta 100, 103, 104
  obovata 97, 98, 99, 100, 102, 106, 108, **114**, 116, Fig. 19.
  ochroleuca 100, 103, 104
  octomaeriaeformis 100, 114
  osmosperma 100, 115
  ottonis 100, 120
  papuligera 100, 102, **116**, Fig. 20.
  peregrina 100, 110
  poasensis 100, 110
  racemosa 100, 103
  ramulosa 100, 101, **117**, Fig. 21.
  regalis 100, 102, **117**, 118, Fig. 22.
  rubens 99, 100, 102, 109, **118**, 122, 124, Fig. 23.
    var. latifolia 100, 118
    var. longifolia 100, 118
  scariosa 100, 102, **119**, Fig. 25.
  schlimii 97, 100, 101, **120**, Fig. 25.
  sclerophylla 100, 102, 109, 111, 113, 117, **120**, 122, Fig. 26.
  soratana 100, 101, **122**, Fig. 27.
  spathilabia 100, 102, **122**, Fig. 28.
  spathuliformis 100, 101, **123**, Fig. 29.
  stenoglossa 100, 108
  stenopetala 100, 113, 120
  stenophylla 100, 101, 104, 112, **123**, 124, Fig. 30.
  superposita 100, 117
  tenuifolia 100, 103, 104
    var. longisepala 100, 112
  triura 100, 120
  unduavica 100, 102, 109, **124**, Fig. 31.
  urosepala 100, 120
  vasquezii 100, 101, **124**, Fig. 32.
Specklinia acuminata 103
  obovata 114
  scariosa 119
Stelis fasciculiflora 114
Trichosalpinx 97

ADDENDA TO *DRACULA, LEPANTHES, MASDEVALLIA,* AND *PLEUROTHALLIS*

ABSTRACT

The following species of *Dracula* Luer, *Lepanthes* Sw., *Masdevallia* Ruiz & Pav., and *Pleurothallis* R.Br. are added to the genera already revised in previous numbers of *Icones Pleurothallidinarum*. The illustrations are numbered as continuations of their respective appearances.

New species:
Dracula olmosii Luer, sp. nov.
Dracula schudelii Luer & Hirtz, sp. nov.
Dracula ter-borchii Luer & Hirtz, sp. nov.
Lepanthes abitaguae Luer & Jost, sp. nov.
Lepanthes aprina Luer & Jost, sp. nov.
Lepanthes barbigera Luer & Jost, sp. nov.
Lepanthes elytrifera Luer & Jost, sp. nov.
Lepanthes hispidosa Luer, sp. nov.
Lepanthes hydrae Luer & Jost, sp. nov.
Lepanthes jostei Luer, sp. nov.
Lepanthes marshana Luer & Jost, sp. nov.
Lepanthes portillae Luer, sp. nov.
Lepanthes privigna Luer & Jost, sp. nov.
Lepanthes ruthiana Luer & Jost, sp. nov.
Lepanthes staatsiana Luer & Jost, sp. nov.
Masdevallia amoena Luer, sp. nov.
Masdevallia carpishica Luer & Cloes, sp. nov.
Masdevallia crassicaulis Luer & Portilla, sp. nov.
Masdevallia dorisiae Luer, sp. nov.
Masdevallia ejiriana Luer & Portilla, sp. nov.
Masdevallia fosterae Luer, sp. nov.
Masdevallia merinoi Luer & Portilla, sp. nov.
Masdevallia rana-aurea Luer, sp. nov.
Masdevallia schudelii Luer, sp. nov.
Masdevallia trautmanniana Luer & Portilla, sp. nov.
Masdevallia wuelfinghoffiana Luer & Portilla, sp. nov.
Masdevallia wuerstlei Luer, sp. nov.

Dracula carlueri Hermans & P.J.Cribb, Orchid Rev. 105: 301, 1998.

Ety.: Named for Carlyle August Luer, an illustrator of the Pleurothallidinae.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 0.8-1.8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thinly coriaceous, carinate, narrowly linear-obovate, acute, 10-18 cm long, 1-1.6 cm wide, gradually narrowed below into an indistinct, conduplicate petiole 2-3 cm long. **Inflorescence** a loose, successively few-flowered raceme, borne by a suberect to horizontal peduncle, 10-13 cm long, from low on the ramicaul; floral bract tubular, 7-10 mm long; pedicel 9-11 mm long; ovary 4 mm long, subverrucose, round in cross section; **sepals** white, dotted and suffused with purple within, diffusely long-pubescent within, with the margins conspicuously incurved, the dorsal sepal obovate, 17 mm long, 16 mm wide expanded, connate to the lateral sepals for 8 mm to form a broad, deep, sepaline cup, the apex broadly obtuse, contracted into a thin, purplish tail ca. 8 cm long, the lateral sepals connate 16 mm into a broadly bifid lamina, 23 mm long, 23 mm wide expanded, with a broad, rounded mentum, the apices obtuse, contracted into tails ca. 5 cm long; **petals** cream, marked with dark brown, cartilaginous, oblong, 3 mm long, 1.5 mm wide, the apex bivalvate, densely papillose between the laminae, the inner lamina acute, denticulate, the outer lamina rounded; **lip** rose, 7 mm long, 3.75 mm wide, the epichile ovoid, obtuse, 5 mm long, 3.75 mm wide, with the margins denticulate, involute, the apex deeply involute, with a thin, central carina and a thin carina on either half plus 4-5 small, incomplete lateral carinae, the hypochile ovoid, 5 mm long, 2.5 mm wide, deeply cleft centrally, with thickened margins continuous from the carina, the margins broadly rounded, the base decurved, concave, hinged to the column-foot; **column** white, stout, semiterete, 4 mm long, denticulate at the tip, with a stout foot 4 mm long.

COSTA RICA: **Puntarenas**: road to Santa Elena near Monteverde, Jan. 1990, *J. Hermans 2886* (Holotype: K; Isotype: MO); cultivated by Hermans in Enfield, England, 19 July 1997, *C. Luer 18549* (Clonotype: MO).

This species, apparently rare in an area that had been searched by collectors for over a century, had escaped attention until it was discovered recently by Johan and Clare Hermans of Enfield, England. Prior collections most likely would have been mistaken for a variation of *D. erythrochaete*. It differs from the latter by the deeply cupped flower with incurved margins of the sepals. The sepals are densely long-pubescent within. The lip is similar to that of *D. erythrochaete*, but the epichile is proportionately smaller. The epichile of both concepts is concave with involute margins and three, thin, longitudinal carinae and a few, small, incomplete, radiating carinae.

Dracula olmosii Luer & Maduro, sp. nov.

Ety.: Named for Erick Olmos of Cerro Punta, Chiriquí, Panamá, who collected this species.

Inter species generis *Draculae*, foliis angustis, flore parvo, sepalis in cupulam connatis intus dense longipubescentibus et labello parvo crasso subpandurato epichilio brevi plus minusve tricarinato differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-4 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thinly coriaceous, carinate, narrowly linear-obovate, acute, 15-23 cm long, 1.8-2.8 cm wide, gradually narrowed below into an indistinct, conduplicate petiole 3-4 cm long. **Inflorescence** a loose, successively few-flowered raceme, up to ca. 4 cm long, borne by a horizontal peduncle, 8-10 cm long, from low on the ramicaul; floral bracts tubular, 5-7 mm long; pedicel 6-11 mm long; ovary 3.5-4 mm long, round in cross section; **sepals** white, or white suffused with purple above the middle, densely long-pubescent within, the dorsal sepal broadly ovate, 9 mm long, 10.5 mm wide, connate to the lateral sepals for 5 mm to form a broad, sepaline cup, the apex broadly obtuse, contracted into a slender, purple tail ca. 5 cm long, the lateral sepals connate 8 mm into a subquadrate, broadly bifid lamina, 10.5 mm long, 16 mm wide, with a broad, rounded mentum, the apices obtuse, contracted into slender, purple tails ca. 5 cm long; **petals** white, marked with purple, cartilaginous, oblong, 2.5 mm long, 1.25 mm wide, the apex bivalvate, papillose between the laminae, the inner lamina irregular, obtuse, the outer lamina rounded, irregular; **lip** white, thick, subpandurate, 5 mm long, 3 mm wide, the epichile suborbicular, concave, obtuse, 2.5 mm long, 3 mm wide, with 3 short, longitudinal, irregular carinae, and 3-5 incomplete fragments within, the hypochile ovoid, 3 mm long, 2 mm wide, deeply cleft centrally, with thickened margins, the base decurved, concave, hinged to the column-foot; **column** white, stout, semiterete, 3.5 mm long, denticulate at the tip, with a stout foot 3 mm long.

PANAMA: **Bocas del Toro**: alt. 2000 m, collected by E. Olmos, 1994, cultivated at Finca Dracula, Cerro Punta, 14 Nov. 1998, *C. Luer 18990* (Holotype: MO); alt. 1800 m, cultivated at Finca Dracula, Cerro Punta, 14 Nov. 1998, *C. Luer 18979* (MO).

This species is apparently endemic in the forests of Bocas del Toro, the Pacific-facing slopes of western Panama. It seems more closely related to Andean species than to Central American species. It is characterized by narrow leaves, and a small, cupped flower that occurs both pure white or white with purple suffusion above the middle. The sepals are densely long-pubescent within. The lip is small and thick, with the hypochile slightly larger than the epichile. The epichile is short and shallowly concave between three irregular carinae; the cleft of the hypochile is proportionately large.

Dracula schudelii Luer & Hirtz, sp. nov.

Ety.: Named for George Schudel of Middleburg, Florida, who cultivates this species.

Inter species generis *Draculae*, foliis anguste ellipticis, inflorescentia uniflora, flore grande, sepalis expansis virescentibus multipunctatis caudis longissimis, labelli epichilio ovoideo marginibus involutis distinguitur.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 3-4 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thinly coriaceous, carinate, narrowly elliptical, acute, 13-17 cm long, 2.4-2.7 cm wide, gradually narrowed below into an indistinct, conduplicate petiole 3-4 cm long. **Inflorescence** a single flower borne successively by a horizontal to descending peduncle, 15-18 cm long,

from low on the ramicaul; floral bract tubular, 15 mm long; pedicel 15 mm long; ovary low-denticulate-crested, 8 mm long, 4 mm wide, round in cross section; **sepals** light green, diffusely dotted with purple, shortly pubescent within, the dorsal sepal ovate-triangular, 30-35 mm long, 25 mm wide, connate to the lateral sepals for 10 mm to form a broadly expanded flower, the apex acute, contracted into a slender, red-brown tail 15 cm long, the lateral sepals ovate, oblique, acute, connate 25 mm into a broad lamina, 35-40 mm long, 42 mm wide, the apices contracted into equally long, slender tails, similar to that of the dorsal sepal; **petals** ivory, marked with dark brown, cartilaginous, oblong, 5 mm long, 2.5 mm wide, the apex bivalvate, papillose between the laminae, the inner lamina subacute, the outer lamina rounded, minutely erose; **lip** white, 14 mm long, 11 mm wide, the epichile suborbicular-oblong, concave, rounded, 11 mm long, 11 mm wide, with 3 incomplete, irregular, longitudinal carinae, and 8-10 incomplete fragments within, the hypochile ovoid, 5 mm long, 4.5 mm wide, deeply cleft centrally, with thickened margins, the base decurved, concave, hinged to the column-foot; **column** white, stout, semiterete, 4.5 mm long, denticulate at the tip, with a stout foot 3 mm long.

ECUADOR: Without locality, collected by A. Hirtz, cultivated at Middleburg, FL, 7 May 1999, by *G. Schudel s.n.* (Holotype: MO), C. Luer illustr. 19157.

A first impression of this plant is that it is a hybrid, and this may be true with one of the parents being *D. vespertilio* (Rchb.f.) Luer. However, it was collected "in the wild," and is therefore either a natural hybrid or a species deserving recognition in either case. This taxon is characterized by narrowly elliptical leaves, and a single, large, expanded flower. The sepals are light green with numerous, small, purple-brown spots, and with slender tails about 15 centimeters long. The crested ovary is similar to that of *D. vespertilio*. The epichile of the lip is large and suborbicular with involute margins, and filled with incomplete carinae and fragments.

Dracula terborchii Luer & Hirtz, sp. nov.

Ety.: Named for Herman Ter Borch of Eindhoven, the Netherlands, who cultivates this species.

Inter species generis *Draculae*, foliis plicatis, floribus magnis, sepalis expansis dense purpureo-maculatis intus breviter pubescentibus et labelli epichilio grande transverso lateribus obtusis involutis distinguitur.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 4-8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thinly coriaceous, carinate, subplicate, elliptical-obovate, acute, 15-28 cm long, 3.5-4 cm wide, gradually narrowed below into an indistinct, conduplicate petiole 4-5 cm long. **Inflorescence** a loose, successively few-flowered raceme, up to ca. 6 cm long, borne by a horizontal to descending peduncle, 12-15 cm long, from low on the ramicaul; floral bracts tubular, 10-15 mm long; pedicels 16-20 mm long; ovary cellular-pubescent, 8 mm long, 4 mm wide, round in cross section; **sepals** purplish, densely dotted with dark purple, white at the base, shortly pubescent within, the dorsal sepal ovate, 25-30 mm long, 19-21 mm wide, connate to the lateral sepals for 6 mm to form a broadly expanded flower, the apex subacute, contracted into a slender, purple tail 6-7.5 cm long, the lateral sepals ovate, oblique, subacute, connate 10-12 mm, diverging, 30-40 mm long, 20-23 mm wide, the apices contracted into slender, purple tails 6-7 cm long; **petals** ivory, marked with purple, cartilaginous, spathulate, 4 mm long, 2.5 mm wide, the apex bivalvate, papillose between the laminae, the inner lamina acute, the outer lamina rounded; **lip** white, bisegmented, the epichile transversely elliptical, concave with obtuse, involute sides, 11 mm long, 15 mm unexpanded, 22 mm wide expanded, with 3 longitudinal carinae and many laterally radiating carinae within, the apex transverse (thickened in one of two specimens), the hypochile ovoid, 4 mm long, 4 mm wide, cleft centrally, with thickened margins continuous with the central carina of the epichile, the base decurved, concave, hinged to the column-foot; **column** white, stout, semiterete, 5 mm long, denticulate at the tip, with a stout foot 4 mm long.

ECUADOR: **Carchi:** above Chical, alt. 1200 m, collected by A. Hirtz, Sept. 1998, cultivated at Middleburg, FL, by *G. Schudel 1906* (Holotype: MO), C. Luer illustr. 19084. Without collection data, obtained from Ter Borch, cultivated in Venhuizen, the Netherlands, by *A.P. Sijm s.n.* (MO), C. Luer illustr. 18875.

This status of this taxon is in question as in the preceding taxon. It was collected in northernmost Ecuador, also by Hirtz. It is most similar to *D. polyphemus* (Luer) Luer, but the large epichile of *D. terborchii* is much broader with involute sides. In addition, the sepals are subacute, less deeply connate and more widely diverging; and the petals are distinctly smaller.

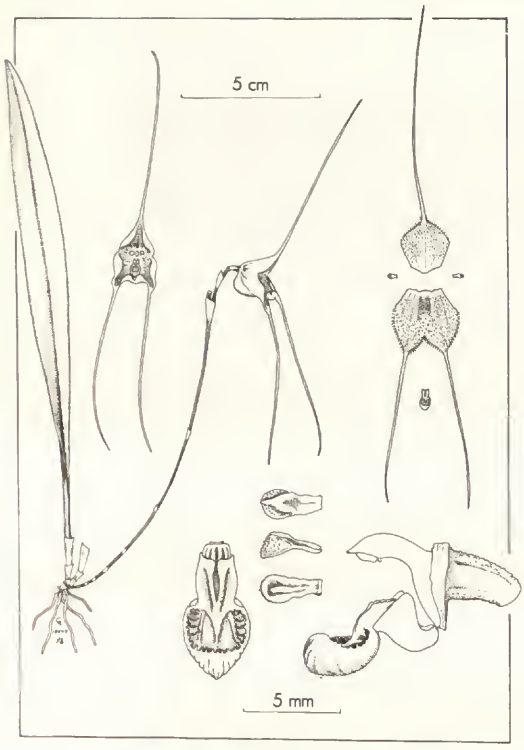


Fig. 113. Dracula carlueri

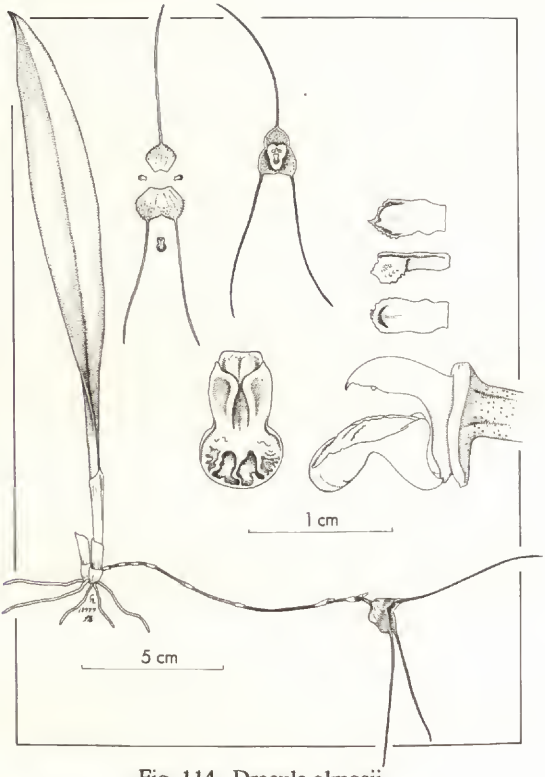


Fig. 114. Dracula olmosii

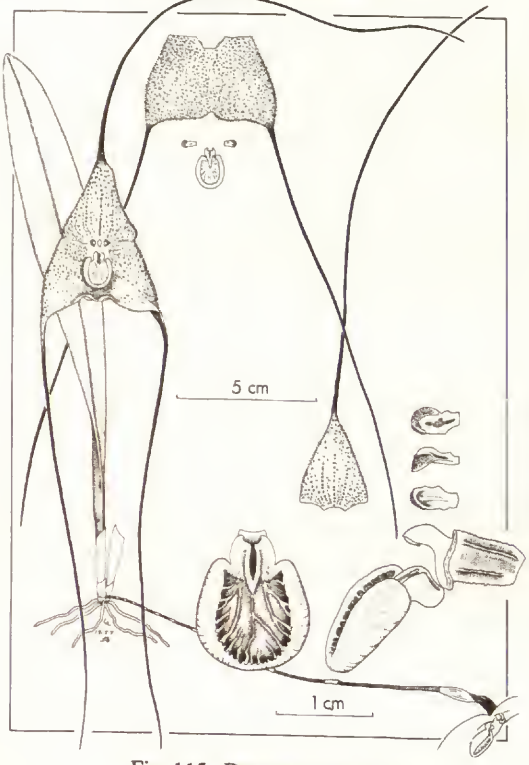


Fig. 115. Dracula schudelii

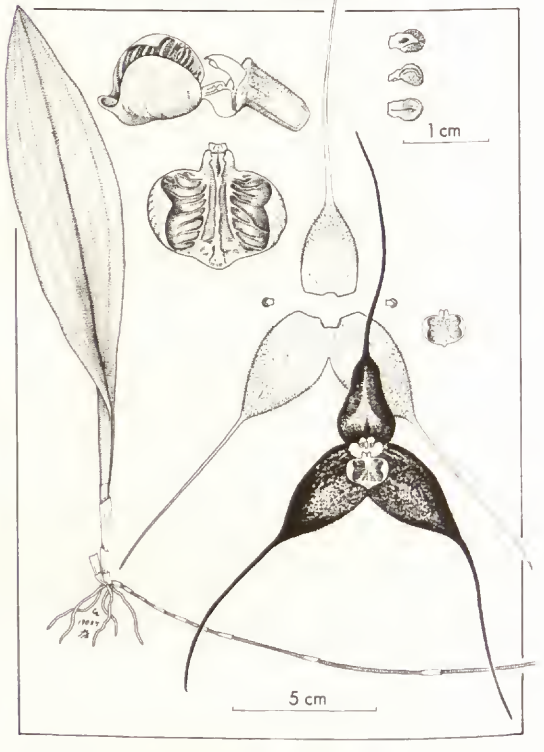


Fig. 116. Dracula terborchii

The following 11 species of subgenus *Lepanthes* and one species of subgenus *Marsipanthes* raise the number of species of subgenus *Lepanthes* found in Ecuador to 304, or to a total of 315 for the genus including subgenus *Brachycladium*.

Lepanthes abitaguae Luer & Jost, sp. nov.

Ety.: Named for Cerro Abitagua in the province of Tungurahua, Ecuador, where the species was collected.

Inter species ser. *Mucronatae* sect. *Lepanthes* species haec *L. mucronatae* Lindl. similis, sed pedunculo longiore plusminusve arcuato, labellae lobis membranaceis ad basim plicatis, et appendice obtuse triangulata ad apicem revoluta differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, 6 cm long, enclosed by 7 ciliate, acuminate, lepanthiform sheaths. **Leaf** erect, thinly coriaceous, suffused with purple beneath, elliptical, acute, acuminate with a prominent mucro, 6 cm long, 2 cm wide, the base cuneate into a petiole 3 mm long. **Inflorescence** a congested, distichous, successively many-flowered raceme up to 1 cm long, borne by a suberect to arching, slender peduncle 2.5-4 cm long, from the dorsum of the leaf; floral bracts 1.5 mm long; pedicels 3-3.5 mm long; ovary costate, 2.75 mm long; **sepals** translucent yellowish, suffused with red, carinate, the dorsal sepal ovate, acute, apiculate, 6 mm long, 2.5 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals cellular denticulate, connate 3 mm into an ovate bifid synsepal, 6 mm long, 5.5 mm wide, 4-veined, with the apices acute; **petals** yellow (straw colored), microscopically pubescent, transversely bilobed, with a 1.5 mm long, uncinate midlobe from the outer margin between the lobes, the upper lobe quadrate, sharply truncate, 3 mm long, 2 mm wide, the lower lobe narrowly triangular, acute, 3.25 mm long, 1 mm wide at the base; **lip** rose, glabrous, bilaminate, the laminae membranous, suboblong, 3 mm long, the apices truncate, the bases obtuse, sharply folded over the connectives, the connectives thin, broadly cuneate, connate to the base of the column, the appendix triangular, with the tip beneath the stigma, acutely reflexed, pubescent; **column** 3 mm long, the anther dorsal, the stigma ventral.

Tungurahua: Cerro Abitagua, near Río Zuñac, alt. 2000 m, 17 June 1998, *L. Jost 1069* (Holotype: MO), C. Luer illustr. 19247.

Among the species of series *Mucronatae*, this species is most similar to the seemingly ubiquitous *L. mucronata*. The longer peduncles are similarly borne from the top of the base of the leaf, but the raceme does not rest upon the leaf, but instead, it arches to bear the raceme beyond the margin of the leaf. The flowers are similar with sharply truncate upper lobes of the petals. The lobes of the lip are also membranous, but acutely folded at the base, as seen in *L. corrugata, L. ortegae. L. pelyx*, and *L. rhodophylla*. The tip of the appendix is pubescent and acutely recurved beneath the stigma.

Lepanthes aprina Luer & Jost, sp. nov.

Ety.: From the Latin *aprina*, "like a wild boar," referring to the tusk-like lateral sepals.

Planta parva, racemo disticho folio pendenti anguste ovato convexo sulcato breviore, sepalis rubris cristatis concavis brevicaudatis, petalis transversis anguste oblongis, labelli laminis glabris oblongis, appendice tenui minuta distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, suberect, 4.5 cm long, enclosed by 9-10 minutely scabrous, lepanthiform sheaths with widely dilated, ciliate margins. **Leaf** pendent, rigidly coriaceous, narrowly ovate, acute, convex, sulcate medially, 5 cm long, 1.5 cm wide, the base cuneate, contracted into a petiole 1 mm long. **Inflorescence** a distichous, subcongested, successively several-flowered raceme, up to 5 mm long, borne within the sulcus on the dorsum of the leaf by a slender peduncle 5 mm long; floral bracts acute, 1 mm long; pedicels 1-1.5 mm long; ovary 2 mm long, minutely spiculate-carinate; **sepals** red, glabrous, erose-carinate, concave, the dorsal sepal ovate, cucullate, 6 mm long, 3.5 mm wide, 3-veined, the apex obtuse, contracted into a tail ca. 2 mm long, connate to the lateral sepals for 1 mm, the lateral sepals oblique, 6 mm long, 2.5 mm wide, 2-veined, with the apices acute, acuminate into upward-sweeping tails 3 mm long; **petals** red, glabrous, transversely oblong-bilobed, 0.5 mm long, 3.75 mm wide, the lobes narrowly oblong with rounded ends; **lip** red, bilaminate, the blades glabrous, slightly convex, with rounded apices and subacute ends, 2.75 mm long, covering the column, the connectives cuneate, the body connate to the base of the column, the appendix small, membranous, in contact with a process from the stigma; **column** 1 mm long, the anther apical, the stigma ventral.

ECUADOR: **Tungurahua**: above Río Verde, alt. 2210 m, 22 Dec. 1998, *L. Jost 1187* (Holotype: MO), C. Luer illustr. 19054.

Superficially, the flower this small species resembles *L. dodsonii* Luer, but the leaf is similar to those species related to *L. manabina* Dodson. The curved-up, tusk-like tails of the lateral sepals resembles those of both the preceding species, as well as *Scaphosepalum rapax* Luer. The ruby-red flower is borne on a short raceme in the sulcus of a pendent leaf. The sepals are concave with erose-fringed carinae. The petals are transverse and narrowly oblong. The blades of the lip are glabrous. The membranous appendix is in contact with a finger-like process from the stigma.

Lepanthes barbigera Luer & Jost, sp. nov.

Ety.: From the Latin *barbiger*, "bearing whiskers," referring to the long-ciliate blades of the lip.

Planta mediocris, racemo disticho congestissimo folio longi-acuminato breviore, sepalis denticulatis brevi-acuminatis, petalis transverse bilobis pubescentibus, labelli laminis oblongis longi-ciliatis, appendice oblonga sulcata minute pubescenti distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4-8 cm long, enclosed by 8-13 minutely ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, ovate, acute, long-acuminate, 4-6 cm long, 2-2.2 cm wide, the base rounded, abruptly contracted into a petiole 3 mm long. **Inflorescence** a distichous, congested, successively many-flowered raceme, up to 15 mm long, borne behind the leaf by a slender peduncle 10-15 mm long; floral bracts 0.75 mm long; pedicels 0.5 mm long; ovary 1.5 mm long; **sepals** translucent pale yellow, suffused with rose, denticulate, carinate, the dorsal sepal ovate, obtuse, shortly acuminate, 4.5 mm long, 3 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals ovate, oblique, obtuse, shortly acuminate into tails less than 1 mm long, 4 mm long, 3.5 mm wide, 2-veined, connate 1 mm; **petals** orange with the upper edge rose, transversely bilobed, 0.75 mm long, 3.5 mm wide, the upper lobe oblong, rounded at the tip, ciliate, microscopically pubescent, the lower lobe narrowly triangular, rounded at the tip, long-pubescent; **lip** red, bilaminate, the blades oblong, glabrous, long-ciliate toward the apex, slightly concave, with the bases rounded and the apices subacute, conduplicate, 1.9 mm long, covering the column, the connectives cuneate, forming a broad, thick body, connate to the base of the column, the appendix small, oblong, sulcate, minutely pubescent; **column** 2 mm long, the anther apical, the stigma ventral.

ECUADOR: **Tungurahua**: Cerro Mayordomo, alt. 2550 m, 30 Mar. 1999, *L. Jost 1511* (Holotype: MO), C. Luer illustr. 19154.

This species is characterized by the ovate, long-acuminate leaf, and a very congested raceme behind the leaf. The sepals are denticulate and obtuse but shortly acuminate. The petals are pubescent, the lower lobes being long-pubescent. The blades of the lip are flat to slightly concave and long-ciliate toward the apices. The appendix is sulcate and protrudes beyond a thick sinus of the body.

Lepanthes elytrifera Luer & Jost, sp. nov.

Ety.: From the Latin *elytra* and *-fer*, "bearing a pair of horny covers like the wings of beetles."

Planta grandis, racemo disticho congesto folio elliptico abrupte brevi-acuminato breviore, sepalis ovatis acuminatis liberis, petalis transverse lobatis glabris, labelli laminis oblongis convexis membranaceis, connectivis crassis, appendice bifurcata distinguitur.

Plant large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 13-20 cm long, enclosed by 12-14 acuminate, glabrous, lepanthiform sheaths with thickened margins. **Leaf** erect, elliptical, shortly acuminate, 6-8 cm long, 3-4 cm wide, the base rounded, abruptly contracted into a petiole 6-7 mm long. **Inflorescence** a distichous, congested, successively many-flowered raceme, up to 15 mm long, borne behind the leaf by a slender peduncle 25-30 mm long; floral bracts acuminate, 2-2.5 mm long; pedicels 1.5-2 mm long; ovary 8 mm long; **sepals** free, diverging, pale yellow, microscopically ciliate, sharply carinate, concave centrally, ovate, acute, acuminate, the dorsal sepal 9 mm long, 4 mm wide, 3-veined, the lateral sepals oblique, 9 mm long, 2 mm wide, 2-veined; **petals** yellow, red at the base, connate to the column above the base, glabrous, transversely bilobed, 0.75 mm long, 2 mm wide, the upper lobe obliquely oblong, obtuse, the lower lobes triangular; **lip** purple, bilaminate, the blades glabrous, oblong, with obtuse ends, notched medially below the apex, ciliate apically, 2 mm long, convex with the lateral halves membranous, the connectives broadly cuneate, thick, forming a stout body, connate to the base of the column, the appendix small, bifid above the base; **column** 1.5 mm long, the anther and stigma apical.

ECUADOR: **Tungurahua**: mountains above Ulba, alt. 2550 m, 23 Mar. 1999, *L. Jost 1490* (Holotype: MO), C. Luer illustr. 19156.

This large species of series *Lepanthes* subsection *Lepanthes* is superficially similar to *L. condorensis* Luer & Hirtz, with diverging sepals, but the sepals of *L. elytrifera* are free. The blades of the lip are oblong with the outer halves membranous, and thickened medially with the connectives. The appendix is forked above the middle.

Lepanthes hispidosa Luer & Jost, sp. nov.

Ety.: From the Latin *hispidosus*, "very hispid," referring to the sheaths of the ramicauls.

Planta parva, ramicaulium vaginis hispidosis, racemo disticho congesto folio anguste elliptico acuto breviore, sepalis glabris ovatis acutis, petalis transverse bilobis, lobo superiore obtuso, lobo inferiore minore, labelli laminis oblongis crassis, corpore lato cum appendice extus cristiformi distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 6-8 cm long, enclosed by 11-14 densely long-hispid, lepanthiform sheaths. **Leaf** erect, coriaceous, suffused with purple beneath, narrowly elliptical, acute, 5 cm long, 1 cm wide, the base cuneate. **Inflorescence** a distichous, congested, successively many-flowered raceme, up to 10 mm long, borne behind the leaf by a slender peduncle ca. 15 mm long; floral bracts echinate, 1.5 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** yellowish white, glabrous, carinate, the dorsal sepal broadly ovate-triangular, acute, 3.8 mm long, 3.2 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals ovate, oblique, acute, 4 mm long, 2 mm wide, 2-veined, connate 1 mm; **petals** golden yellow, suffused with red, microscopically cellular, transversely bilobed, 1.2 mm long, 3 mm wide, 2-veined, the upper lobe ovate with the apex rounded, 2 mm long, 1.2 mm wide. the lower lobe triangular, acute, incurved, 1.2 mm long, 0.6 mm wide; **lip** golden yellow, suffused with red, bilaminate, the blades microscopically pubescent, oblong, narrowly obtuse at the apex, rounded at the base, 1.2 mm long, flanking the column, the connectives thick, broadly cuneate, forming a broad, thick, concave body, connate to the base of the column, the appendix external, crest-like; **column** 1.2 mm long, the anther dorsal, the stigma apical.

ECUADOR: **Morona-Santiago**: near Cunanda, alt. 1110 m, 17 Aug. 1998, *L. Jost 1092* (Holotype: MO), C. Luer illustr. 19171.

Vegetatively, this species resembles *L. pteropogon* Rchb.f. with the densely long-ciliate sheaths of the ramicauls; an acute, narrowly elliptical leaf; and a shorter, congested raceme. The flowers differ greatly with the sepals of *L. hispidosa* glabrous and entire, and the appendix crest-like on the external surface of the body of the lip.

Lepanthes hydrae Luer & Jost, sp. nov.

Ety.: Named for a *Hydra*, a genus of minute, hydrozoan polyps.

Planta parva, racemo disticho congesto folio elliptico acuminato breviore, sepalis sparsim denticulatis acutis, petalis transverse bilobis, lobo superiore acuto triangulari, lobo inferiore obtuso triangulari, cum apiculo inter lobos minuto marginali, labelli laminis ovatis, acutis, corpore lato cum appendice minuta hydraformi distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4-5 cm long, enclosed by 6-7 minutely ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, petiolate, acute, acuminate, 30 mm long, 15 mm wide, the base cuneate into a petiole 5 mm long. **Inflorescence** a distichous, congested, successively many-flowered raceme, up to 25 mm long, borne behind the leaf by a slender peduncle 10 mm long; floral bracts 1 mm long; pedicels 1.25 mm long; ovary 1 mm long; **sepals** white, sparsely denticulate, carinate, the dorsal sepal triangular, acute, 4 mm long, 2 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals oblong, oblique, acute, 4 mm long, 1.75 mm wide, 2-veined, connate 0.5 mm; **petals** white with magenta edges, microscopically pubescent, transversely bilobed, 0.9 mm long, 2.5 mm wide, 1-veined, the upper lobe triangular, acute, the lower lobe triangular, obtuse, with a minute, marginal apiculum between the lobes; **lip** magenta, bilaminate, the blades microscopically pubescent, ovate, acute at the apex, rounded at the base, 1.5 mm long, flanking the column, the connectives broadly cuneate, forming a broad, thick body, connate to the base of the column, the appendix minute, slender, pedunculated, ciliate; **column** 1.5 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Tungurahua**: Cerro Anangu near Baños, alt. 2700 m, 21 Jan. 1999, *L. Jost & R. Kunstaetter 1320* (Holotype: MO), C. Luer illustr. 19234.

This little species is characterized by a small, acuminate leaf with a distinct petiole, and longer than the congested raceme. The sepals are acute with the laterals barely connate basally. The lobes of the petals are triangular, the upper acute, the lower obtuse. The blades of the lip are ovate with acute tips curving beneath the column. The appendix is a minute, ciliated, pedunculated structure that resembles a freshwater hydra.

Lepanthes jostii Luer, sp. nov.

Ety.: Named in honor of Louis (Lou) Jost, physicist, biologist and artist of Baños, Ecuador, who discovered this species.

Planta grandis, racemo disticho congesto folio reticulato elliptico abrupte longi-acuminato breviore, sepalis late ovatis leviter brevi-acuminatis, petalis transverse late breviter caudatis glabris, labelli laminis hemisphericis convexis, appendice bilobata distinguitur.

Plant large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 19-24 cm long, enclosed by 13-14 slender, acuminate, glabrous, lepanthiform sheaths. **Leaf** erect, elliptical, abruptly acuminate for 3-3.5 cm, 13-15 cm long, 4-4.5 cm wide, the base rounded, abruptly contracted into a petiole ca. 5 mm long. **Inflorescence** a distichous, congested, successively many-flowered raceme, up to 10 mm long, borne behind the leaf by a slender peduncle 25 mm long; floral bracts acuminate, 3 mm long; pedicels 1 mm long; ovary 4 mm long; **sepals** pale yellow, glabrous, subcarinate, broadly ovate, obtuse, slightly shortly acuminate, the dorsal sepal 8 mm long, 7 mm wide, 3-veined, connate to the lateral sepals for 2.5 mm, the lateral sepals oblique, 7 mm long, 5 mm wide, 2-veined; **petals** yellow, suffused with red-purple on the edges, glabrous, transversely bilobed, 1 mm long, 4 mm wide, the upper lobes obliquely oblong, obtuse, with a short, oblique point, the lower lobes triangular with the apex long-acuminate; **lip** yellow, suffused with purple, bilaminate, the blades glabrous, convex, hemispherical, with subacute ends, 2.5 mm long, covering the column, the connectives broadly cuneate, forming a broad body, connate to the base of the column, the appendix small, deeply bifid, pubescent; **column** 2 mm long, the anther apical, the stigma ventral.

ECUADOR: **Tungurahua**: mountains above Ulba, alt. 2900 m, 17 Oct. 1998, *L. Jost 1137* (Holotype: MO), C. Luer illustr. 19017.

This large species of series *Lepanthes* subsection *Lepanthes* is superficially similar to *L. actias-luna* Luer & Hirtz, *L. athenae* Luer and *L. lloënsis* Luer, all noted for their shortly tailed apices of the lobes of the petals. From all of them, it is distinguished by the broad sepals, glabrous petals with upper lobe shortly tailed and the lower lobe long-tailed, and a lip with the blades hemispherical and a small, bifid appendix.

Lepanthes marshana Luer & Jost, sp. nov.

Ety.: Named for Marsha Staats of Austin, Texas, benefactor of Louis Jost.

Planta mediocris, racemo disticho congesto folio longi-acuminato breviore, sepalis denticulatis obtusis subacutisve, petalis transverse bilobis latissimis, lobo superiore falcato, lobo inferiore triangulari, labelli laminis oblongis, corpore lato cum appendice brevi rotundo concavo distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-6 cm long, enclosed by 7-10 scabrous, lepanthiform sheaths. **Leaf** suberect to spreading, coriaceous, ovate, acute, long-acuminate, 3.5-4 cm long, 1.5-1.8 cm wide, the base rounded, abruptly contracted into a petiole 1.5 mm long. **Inflorescence** a distichous, congested, successively many-flowered raceme, up to 8 mm long, borne on top of the leaf by a slender peduncle 7-17 mm long; floral bracts 0.75 mm long; pedicels 0.75 mm long; ovary 0.75 mm long; **sepals** translucent pale yellow, denticulate, carinate, the dorsal sepal ovate, obtuse or subacute, 3.5 mm long, 3.5 mm wide, 3-veined, connate to the lateral sepals for 0.9 mm, the lateral sepals ovate, oblique, subacute, minutely acuminate, 3.5 mm long, 2 mm wide, 2-veined, connate 1.2 mm; **petals** orange with the inner edge red, transversely bilobed, 1 mm long, 5 mm wide, 3-veined, the upper lobe oblong, angled near the middle, then narrowly acute at the tip, microscopically pubescent, 3 mm long, the lower lobe narrowly triangular, oblique, acute, 2 mm long; **lip** dark red, bilaminate, the blades oblong, microscopically pubescent, slightly convex, with the ends rounded, 2 mm long, covering the column, the connectives broadly cuneate, forming a broad, thick body, connate to the base of the column, the appendix small, rounded, concave; **column** 2 mm long, the anther apical, the stigma ventral.

ECUADOR: **Tungurahua**: Cerro Mayordomo, alt. 2300 m, 30 Mar. 1999, *L. Jost 1501* (Holotype: MO), C. Luer illustr. 19155.

Superficially, this species resembles *L. urotepala* Rchb.f., both species characterized by long petals with the upper lobes as long as the dorsal sepal. From the latter, it is distinguished by denticulate sepals, petals with longer lower lobes, and with the upper lobes angled near the middle to suggest the shape of a scimitar. The appendix of *L. urotepala* is bisegmented, while the appendix of *L. marshana* is rounded and concave.

Lepanthes portillae Luer, sp. nov.

Ety.: Named in honor of José Portilla of Gualaceo, Ecuador, who collected this species.

Inter species subgeneris *Marsipanthum*, species haec sepalis profunde fimbriatis in tubum suborbicularem connatis, petalis longipubescentibus anguste transverse bilobis, labello longipubescenti crassis hippocrepiformi differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2.5-3 cm long, enclosed by 11-12 shortly ciliate, lepanthiform sheaths with dilated ostia. **Leaf** erect, coriaceous, broadly elliptical, broadly obtuse to rounded at the apex, 19-22 mm long, 13-14 mm wide, rounded below, abruptly contracted into a petiole 2 mm long. **Inflorescence** a loose, successively several-flowered raceme up to ca. 3 cm long with the flower pendent, borne beyond the leaf by a slender peduncle 1-2 cm; floral bracts echinate, 2 mm long; pedicels 1 mm long; ovary long papillose-spiculate, 1.5 mm long, 2 mm wide; **sepals** light yellow-green, suffused with brown above the middle, carinate-fringed, the dorsal sepal transversely ovate, concave, obtuse and apiculate at the apex, with margins deeply fimbriate, 8 mm long, 10 mm wide expanded, 3-veined, connate 4 mm to the lateral sepals to form an inflated, ovoid, saccate cup, the lateral sepals ovate oblique, markedly convex in the middle third, with the acute, triangular apices acutely decurved, connate 4 mm into a concave synsepal, 10 mm wide expanded, 9 mm long including the recurved apices 3 mm long, incompletely 6-veined; **petals** brown, densely long-pubescent, transversely bilobed, 0.75 mm long, 3.5 mm wide, the lobes opposite, narrowly triangular, acute, the upper lobe slightly longer than the lower lobe; **lip** brown, densely long-pubescent, thick, bilobed-horse shoe-shaped, 1.8 mm long, with basal lobes 1 mm long encircling the column, the body thick, obliquely oblong, with a minute, obtuse apiculum at the rounded apex, connate to the column just above the base; **column** terete, minutely pubescent, 2 mm long, the anther apical with the stigma ventral.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, alt. 1800 m, collected by J. Portilla, September 1996, cultivated at Ecuagenera, Oct. 1999, *J. Portilla 50* (Holotype: MO), C. Luer illustr. 19246.

This species is apparently rare and endemic in the Cordillera del Condor of southeastern Ecuador. In the subgenus *Marsipanthes* it is superficially similar to *L. ribes* Luer, but differs in the markedly spiculate and fringed, suborbicular sepaline cup. The lateral sepals are conspicuously inflated in their middle third along the lower rim of the cup, with the apices acutely reflexed.

Lepanthes privigna Luer & Jost, sp. nov.

Ety.: From the Latin *privigna*, "a stepdaughter," alluding to the close similarity to *L. wageneri*.

Species haec *L. wageneri* Rchb.f. affinis, sed foliis ovatis acutis et sepalis anguste ovatis acutis acuminatis differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-4 cm long, enclosed by 5-6 glabrous, lepanthiform sheaths. **Leaf** suberect, coriaceous, ovate, acute, 2.5-3 cm long, 1.3-1.5 cm wide, the base rounded, abruptly contracted into a petiole 3 mm long. **Inflorescence** a distichous, congested, successively many-flowered raceme, up to 10 mm long, borne on top of the leaf by a slender peduncle 6-7 mm long; floral bracts 1 mm long; pedicels 1.5 mm long; ovary 1.25 mm long; **sepals** translucent pale green, suffused with light purple, entire, carinate, the dorsal sepal ovate, acute, slightly acuminate, 4.5 mm long, 2 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals ovate, oblique, acute, slightly acuminate, 4 mm long, 1.5 mm wide, 2-veined, connate 0.5 mm; **petals** yellowish, heavily suffused with red-purple, microscopically pubescent, transversely bilobed, 1 mm long, 2.75 mm wide, 1-veined, the lobes about equal, obliquely triangular, narrowly obtuse; **lip** yellow centrally, heavily suffused with red, bilaminate, the blades suboblong, microscopically pubescent, more or less longitudinally concave, with the apices obliquely truncate with acuminate corners, the bases obtuse, 1.8 mm long, clasping the column, the connectives short, broadly cuneate, forming a narrow body, connate to the base of the column, the appendix external, scaphoid, acute, protruding beyond the sinus; **column** 1.25 mm long, the anther apical, the stigma ventral.

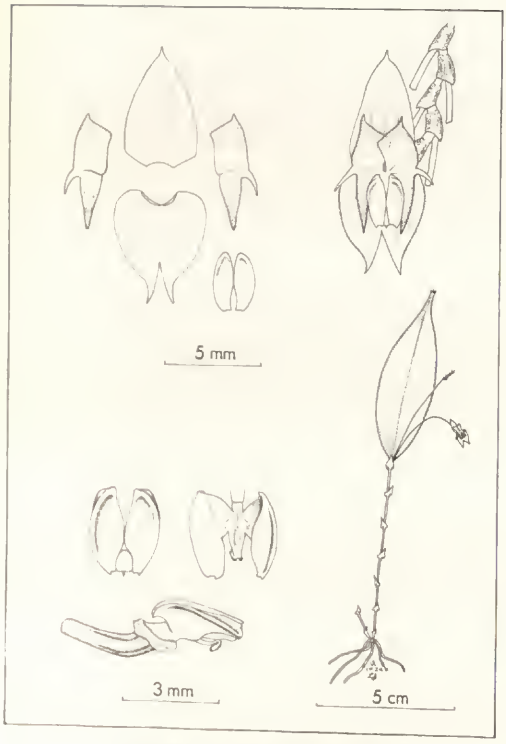


Fig. 293. Lepanthes abitaguae

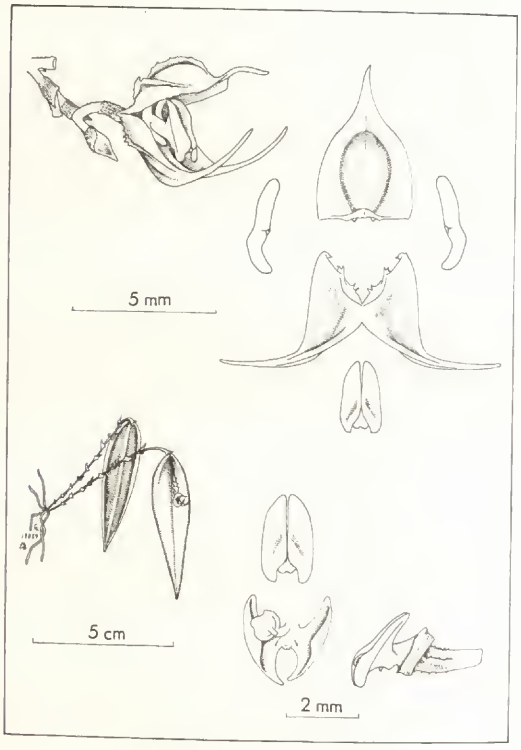


Fig. 294. Lepanthes aprina

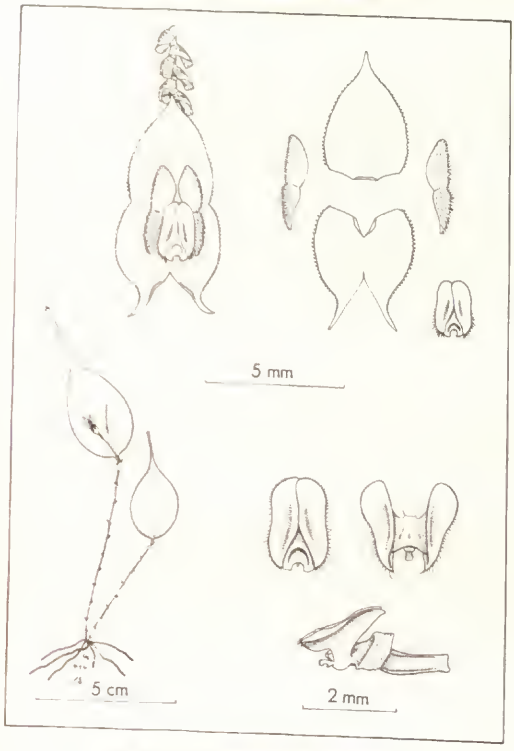


Fig. 295. Lepanthes barbigera

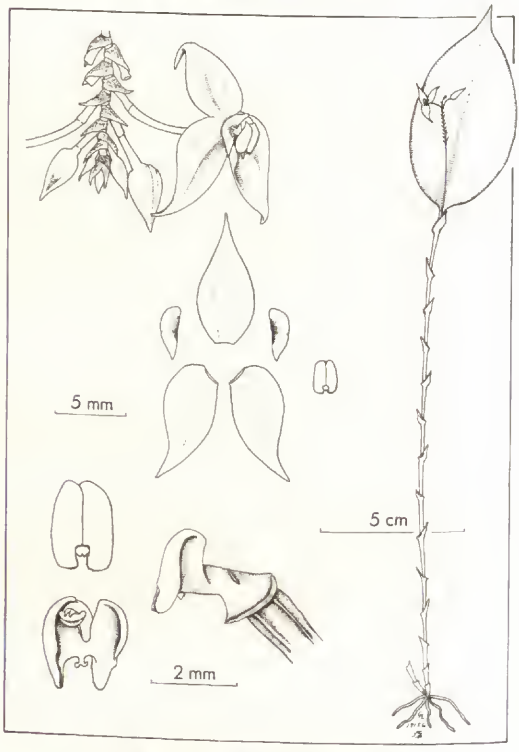


Fig. 296. Lepanthes elytrifera

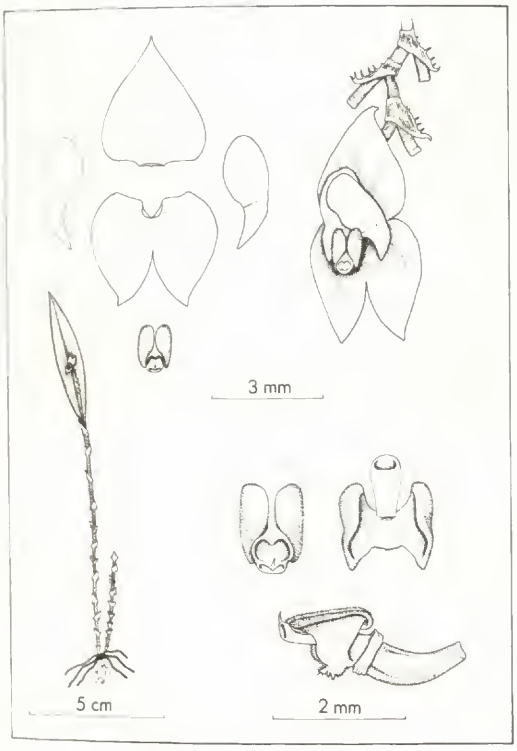


Fig. 297. Lepanthes hispidosa

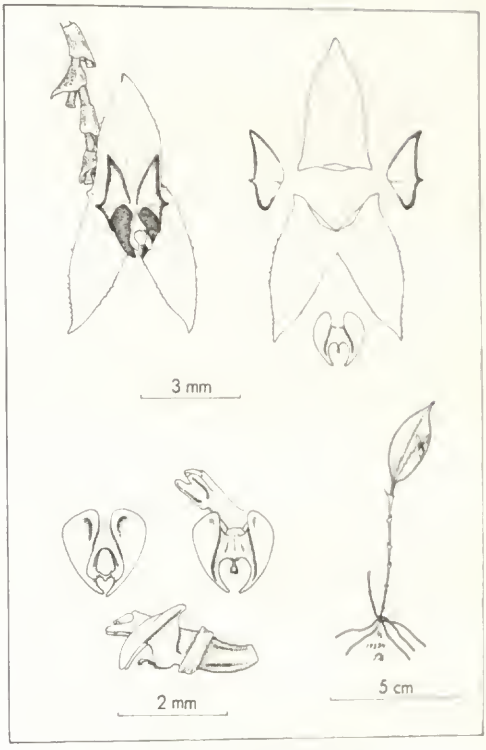


Fig. 298. Lepanthes hydrae

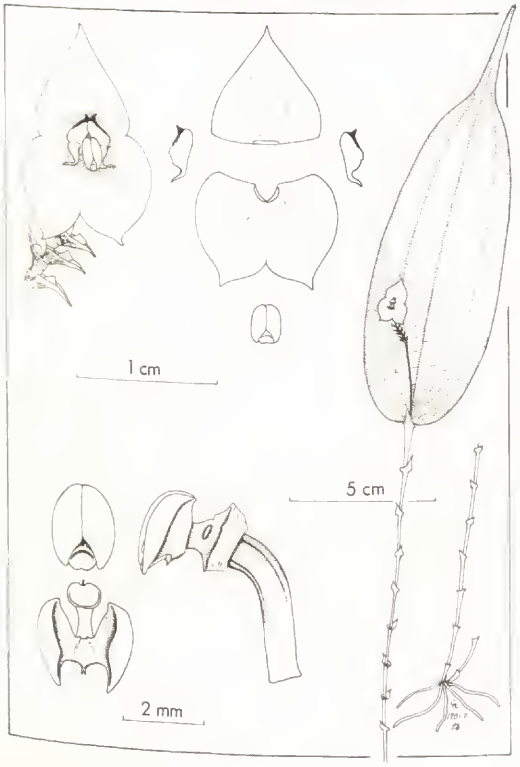


Fig. 299. Lepanthes jostii

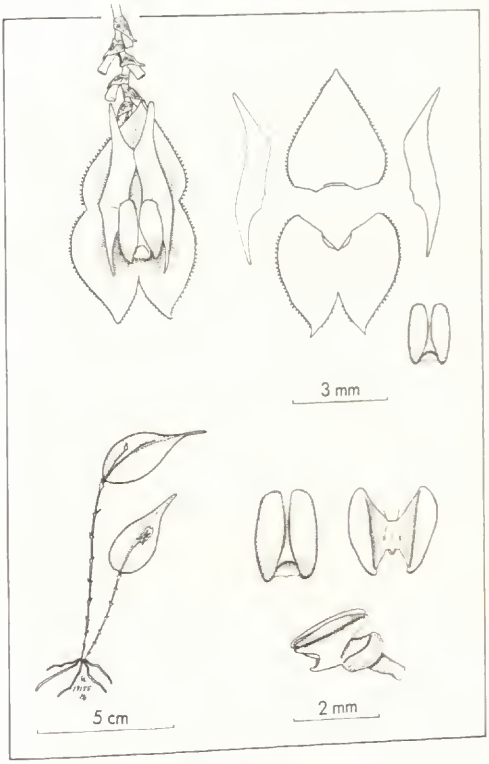


Fig. 300. Lepanthes marshana

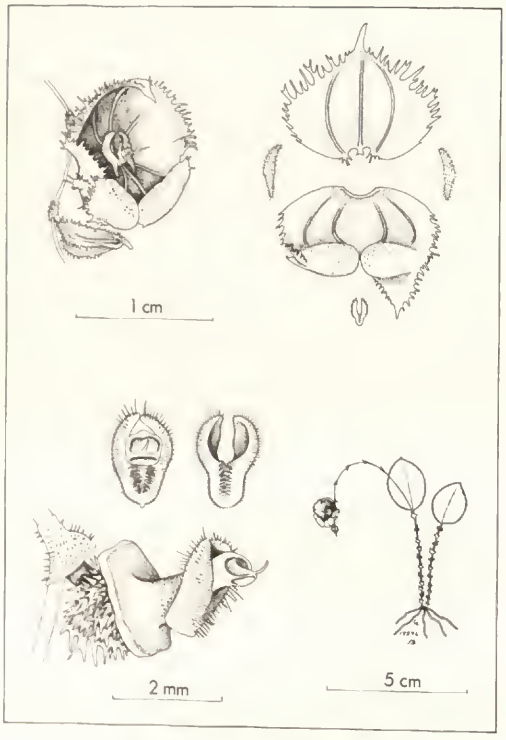


Fig. 301. Lepanthes portillae

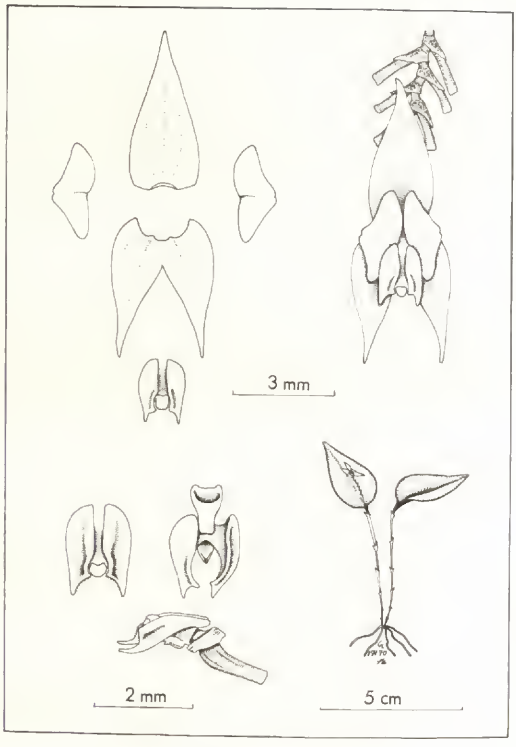


Fig. 302. Lepanthes privigna

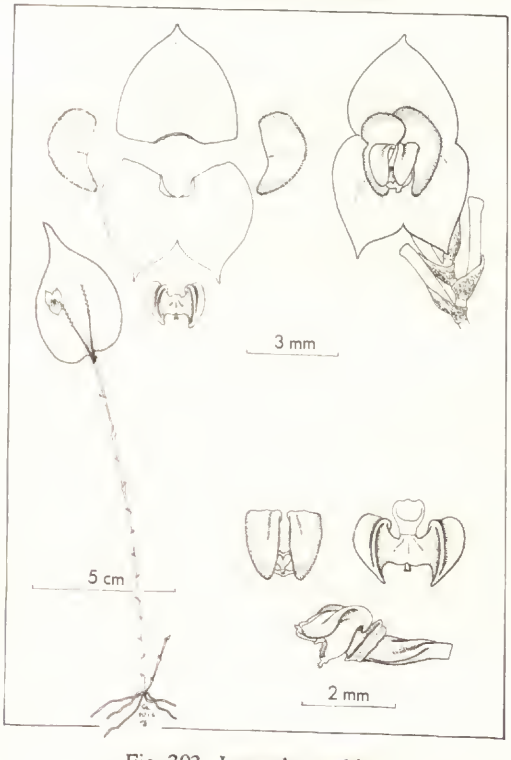


Fig. 303. Lepanthes ruthiana

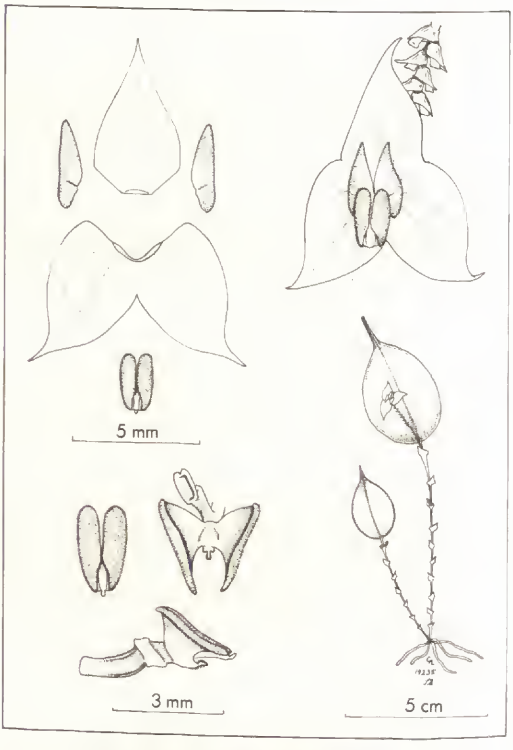


Fig. 304. Lepanthes staatsiana

ECUADOR: **Tungurahua**: Río Verde, alt. 1450 m, 5 May 1999, *L. Jost 1532* (Holotype: MO), C. Luer illustr. 19170.

This small species is similar to the frequent and widely distributed *L. wageneri*, but differs with ovate, acute leaves, and ovate, acute, slightly acuminate sepals with the laterals somewhat spreading. The leaves of *L. wageneri* are obtuse and the sepals are subacute with the laterals nearly approximate.

Lepanthes ruthiana Luer & Jost, sp. nov.

Ety.: Named for Ruth Ann Moore, wife of bird-recorder John V. Moore of San Jose, California.

Planta mediocris grandisve, racemo congesto folio late elliptico abrupte longi-acuminato breviore, sepalis latissimis obtusis breviter acuminatis, petalis transverse late lobatis obtusis pubescentibus, labelli laminis tenuibus oblongis ad basim decurvatis distinguitur.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 11-13 cm long, enclosed by 12-13 slender, acuminate, glabrous, lepanthiform sheaths. **Leaf** erect, broadly elliptical, abruptly acuminate for 1.5 cm, 5-6 cm long, 2.8-3.4 cm wide, the base broadly subcordate, abruptly contracted into a petiole 3-5 mm long. **Inflorescence** a congested, successively many-flowered raceme, up to 15 mm long, borne behind the leaf by a slender peduncle 10-15 mm long; floral bracts acuminate, 1.5 mm long; pedicels 2.5-3 mm long; ovary twisted, 1.5 mm long; **sepals** yellow, glabrous, subcarinate, transversely ovate, obtuse, shortly acuminate, the dorsal sepal 4 mm long, 4.5 mm wide, 3-veined, connate to the lateral sepals for 1.5 mm, the lateral sepals oblique, 4 mm long, 3 mm wide, 2-veined; **petals** yellow, heavily suffused with red-purple, shortly ciliate-pubescent, transversely bilobed, 1.5 mm long, 2.75 mm wide, the lobes obliquely oblong, obtuse, the upper lobe broader than the lower lobe; **lip** white, suffused with magenta, bilaminate, the blades microscopically pubescent, thin, more or less oblong, channeled medially, obtuse, ca. 1.75 mm long, covering the column, with the posterior ends decurved, the connectives broad, forming a broad, concave body, connate to the base of the column, the appendix oblong, pubescent; **column** 1 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Morona-Santiago**: near Cumanda, alt. 1500 m, 17 Aug. 1998, *L. Jost 1096* (Holotype: MO), C. Luer illustr. 19016.

This species of series *Lepanthes* subsection *Lepanthes* is without immediate relatives. The broad leaves, abruptly acuminate, and subcordate at the base are borne by glabrous sheaths. The flower is borne in a congested raceme behind the leaf. The sepals are very broad and obtuse, and the petals are pubescent and bilobed. The lip is most distinctive with the nearly conduplicate blades with recurved bases covering the column. The body is broad with an oblong, pubescent appendix.

Lepanthes staatsiana Luer & Jost, sp. nov.

Ety.: Named for Glenn Staats of Austin, Texas, benefactor of Louis Jost.

Planta mediocris, racemo disticho congesto folio late elliptico longi-acuminato breviore, sepalis glabris acutissimis, petalis transverse bilobis, lobo superiore triangulari, lobo inferiore triangulari obtuso, labelli laminis oblongis, corporibus cuneatis cum appendice elongata bifida pubescenti distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-7 cm long, enclosed by 7-11, dilated, ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, broadly elliptical, obtuse, abruptly long-acuminate, 3-5 cm long including the attenuate apex, 1.5-2.5 cm wide, the base rounded, abruptly contracted into a petiole 3 mm long. **Inflorescence** a distichous, congested, successively many-flowered raceme, up to 10 mm long, borne behind the leaf by a slender peduncle 8-10 mm long; floral bracts 1 mm long; pedicels 0.75 mm long; ovary 1.5 mm long; **sepals** translucent white, entire, carinate, the dorsal sepal ovate, acute, acuminate, 6 mm long, 4 mm wide, 3-veined, connate to the lateral sepals for 1.5 mm, the lateral sepals ovate, oblique, subacute, acuminate, 6 mm long, 4.75 mm wide, 2-veined, connate 1.5 mm; **petals** microscopically pubescent, transversely bilobed, 1 mm long, 3.5 mm wide, 1-veined, the upper lobe suffused with red-purple, narrowly triangular, narrowly obtuse, 2.5 mm long, the lower lobe golden yellow, broadly triangular, obtuse, 1 mm long; **lip** yellow, suffused with red-purple on margins, bilaminate, the blades oblong, microscopically pubescent, flat, with the apices narrowly obtuse, the bases rounded, 2.25 mm long, covering the column, the connectives broadly cuneate, forming a broad body, connate to the base of the column, the appendix small, narrowly linear, minutely bifid, finely pubescent; **column** 2 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Tungurahua**: Río Blanco watershed, alt. 2600 m, 14 June 1999, *L. Jost 1696* (Holotype: MO), C. Luer illustr. 19235.

Vegetatively, the broad leaves abruptly long-acuminate at the tip, resemble those of *L. pelyx* Luer & Hirtz, and the broad, sharply acuminate, diverging lateral sepals resemble those of the large *L. actias-luna* Luer & Hirtz. The narrowly triangular upper lobes of the petals are erect and much longer than the lower lobes. The blades on the lip are oblong, overlying the column. The finely pubescent appendix is minute, linear and microscopically bifid.

Masdevallia amoena Luer, sp. nov.

Ety.: From the Greek *amoenus*, "delightful, lovely," referring to qualities of the species.

Inter species subsect. *Oscilantes*, habitu mediocri, flore grandi, sepalis niveis intus minuute purpureo papillosis obtusis longicaudatis, petalorum callo alato ad basim digitiformi, et labello bialato distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 5-8 cm long including the 2-3 cm long, blackish petiole, the blade elliptical, acute, 1.5-2.3 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by an ascending to horizontal, slender peduncle 4-6 cm long, from low on the ramicaul; floral bract 8 mm long; pedicel 15 mm long; ovary 5 mm long; **sepals** white, yellow basally, glabrous externally, distantly purple cellular-papillose within, the dorsal sepal obovate, 16 mm long, 13 mm wide, connate to the lateral sepals for 10 mm to form a gaping cup, the apex rounded, abruptly contracted into an erect, slender, yellow-green tail 4 cm long, the lateral sepals connate 15 mm into a broadly expanded, transversely obovate lamina 20 mm long, 25 mm wide, the broadly obtuse apices abruptly contracted into slender, descending, yellow-green tails 4 cm long; **petals** yellow, oblong, 5 mm long, 1.75 mm wide, the apex subtruncate, obscurely bilobed, with a wing-like, longitudinal callus along the lower margin ending in a descending, cylindrical, 1 mm long process at the base; **lip** tan, diffusely dotted with brown, black at the apex, more or less oblong, 5.25 mm long, 2.75 mm wide, the margins thin and obtusely dilated near the middle, with the edges, minutely erose, narrowed below the acutely decurved tip, the disc broadly and shallowly concave between a pair of low, longitudinal calli, the base thickened, subcordate, flexibly hinged beneath by a thin strap; **column** yellow, semiterete, 5 mm long, the foot with extension 3 mm long.

ECUADOR: Without collection data, purchased from José Portilla, collector, flowered in cultivation by Ton Sijm at Venhuizen, The Netherlands, 14 Aug. 1999, *T. Sijm 15898* (Holotype: MO), C. Luer illustr. 19227; without collection data, purchased from José Portilla, flowered in cultivation at Hasselt, Belgium, by *P. Cloes s.n.* (MO).

Unfortunately, this attractive species is without collection data. Among the members of subsection *Oscillantes*, it is distinguished by acute, petiolate leaves, and a suberect to horizontal, colorful flower that is large for the subsection. The sepals are white, and yellow at the base. Within, the sepals are diffusely studded with lavender, papillose cells. The obtuse apices are produced into slender, yellow-green tails. The petals are yellow, oblong and longitudinally winged with a finger-like callus at the base. The margins of the lip are thin and dilated into obtuse wings. The tip is black and recurved.

Masdevallia carpishica Luer & Cloes, sp. nov.

Ety.: Named for the Carpish Mountains, Huánuco, Peru, where the species was collected.

Planta grandis, pedunculo foliis ellipticis acutis petiolatis breviore circa medium ramicaulis enascenti, floribus proportione parvis, sepalo dorsali btrvicaudato, sepalis lateralibus acuminatis, petalis oblongis callo basali minuto, et labello oblongo longitudinaliter calloso distinguitur.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 5-8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 10-17 cm long including the blackish petiole 4-6 cm long, the blade elliptical, acute, 2.5-3.5 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower borne by a slender, erect peduncle, 6-10 cm long, from near the middle of the ramicaul; floral bract tubular 10-13 mm long; pedicel 10 mm long; ovary 7-9 mm long; **sepals** fleshy, glabrous, red-brown, the dorsal sepal oblong, 14 mm long, 7 mm wide, obtuse, contracted into a stout, forwardly directed, orange tail 11-14 mm long, connate to the lateral sepals for 11 mm into a slightly arcuate, cylindrical tube, the lateral sepals ovate, oblique, 28-34 mm long, 8 mm wide, connate 8 mm,

the apices acute, acuminate into stout, orange tails ca. 1 cm long; **petals** orange, oblong, 8 mm long, 3 mm wide, the apex obtuse-subtruncate, minutely notched, with a longitudinal callus along the labellar margin, terminating at the base in a minute, acute, incurved process; **lip** orange, oblong, 9 mm long, 3 mm wide, the apex obtuse, the disc shallowly concave between a pair of low, longitudinal calli, with a low, midline callus toward the apex, the base truncate, shallowly cleft, hinged beneath; **column** semiterete, 7 mm long, the foot 3 mm long with a short extension.

PERU: **Huánuco**: Carpish Mountains, alt. 2700 m, July 1998, *P. Cloes 990118* (Holotype: MO), C. Luer illustr. 19057.

This species of subsection *Masdevallia* is apparently endemic in the Carpish Mountains of central Peru. It is characterized by an elliptical leaf acute at both ends with a black petiole and ramicaul. The peduncle arises from near the middle, well above the base. The single flower is proportionately small. The reddish brown sepals are contracted into stout, orange tails. The petals are oblong with a minute, incurved tooth at the base. The lip is also oblong with low, longitudinal carinae.

Masdevallia crassicaulis Luer & Portilla, sp. nov.

Ety.: From the Latin *crassicaulis*, "thick-tail," referring to the sepaline tails.

Inter species subsect. *Masdevalliae*, habitu mediocri, sepalis albis caudis aureis crassis, petalorum callo marginali ad basim minute uncinato, et labello albo panduriformi distinguitur.

Plant medium in size for the subsection, epiphytic, caespitose; roots slender; ramicauls slender, erect, 1.5-2 cm long, enclosed by 2-3 loose, black, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 8-9 cm long including the slender petiole ca. 2.5 cm long, the blade narrowly elliptical, acute to subacute, 1.2 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 4-5 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 9 mm long; pedicel 9 mm long; ovary 7 mm long; **sepals** white, lightly suffused with pale orange toward the base, with a small, dark spot above the base, glabrous, the dorsal sepal oblong, 12 mm long, 6 mm wide, connate to the lateral sepals for 9 mm to form a cylindrical tube, the apex subacute, contracted into an orange, suberect tail 2.5 cm long, 1 mm thick, the lateral sepals elliptical, connate 8 mm into a bifid lamina 13 mm long, 14 mm wide, the free portions obtuse, contracted into orange tails 2 cm long, 1.5 mm thick; **petals** white, oblong, 4.5 mm long, 1.5 mm wide, the apex broadly subtruncate, the lower margin with a longitudinal callus ending in a very small, uncinate process at the base; **lip** white, oblong-pandurate, 4.5 mm long, 2 mm wide, shallowly constricted between the middle and distal thirds, the apex round, the disc smooth, with very slight elevations along the lateral veins, the base truncate, hinged beneath; **column** white, semiterete, 4 mm long, the foot 3 mm long with a short extension.

ECUADOR: **Morona-Santiago**: Pangui, alt. 900 m, collected 10 May 1997 by J. Portilla, cultivated at Ecuagenera, Gualaceo, Ecuador, Oct. 1999, *J. Portilla 102* (Holotype: MO), C. Luer illustr. 19250.

This species of sect. *Masdevallia* is distinguished by the white sepals lightly suffused with yellow toward the base, and thick, straight, orange tails. The basal tooth of the petals is minute and uncinate. The lip white and pandurate, briefly narrowed between the lower two thirds and the rounded apical third. The disc is practically smooth, with barely visible elevations along the lateral veins.

Masdevallia dorisiae Luer, sp. nov.

Ety.: Named for Doris Dukes of Dover, FL, who submitted the plant for identification.

Inter species subsect. *Alaticaules*, habitu mediocri, flore grandi, sepalis flavis roseo suffusis, glabris, acutis attenuatis caudatis, sepali dorsalis cauda decurva, synsepalo ad ostium cupulae decurvo sensim caudato, petalis oblongis, et labello plicato distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, 1.5-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 10-14 cm long including a petiole 2-3 cm long, the blade elliptical, subacute, 1.5-1.8 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a subdense, successively few-flowered raceme borne by an erect, slender, tripetrous peduncle 14 cm long, from low on the ramicaul; floral bract 15 mm long; pedicel 15 mm long; ovary 5-6 mm long; **sepals** yellow, suffused with rose medially, glabrous externally, cellular within, the dorsal sepal elliptical, acute, long-attenuate, decurved, 52 mm long, 10 mm wide, connate to the lateral sepals for 12 mm to form a cylindrical tube, the lateral sepals connate 27 mm into an ovate, bifid lamina,

decurved at the opening of the tube, 35 mm long, 15 mm wide, with acute apices attenuate into slender, descending, white tails 15 mm long; **petals** white, oblong, 7 mm long, 2.5 mm wide, the apex obliquely subtruncate, obscurely lobed, with a longitudinal callus on the lower half ending in an obtuse angle above the base; **lip** white below the middle, black above the middle, oblong, with oblique marginal folds at the middle, 6 mm long, 2.5 mm wide, the apex minutely verrucose, apiculate and denticulate, convex beneath, the base thickened, subtruncate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 3 mm long with an extension.

ECUADOR: Without collection data, purchased by Doris Dukes from a vendor at the orchid show in Quito, Ecuador, Feb. 1994, flowered in cultivation in Dover, FL, Sept. 1995, *D. Dukes s.n.* (Holotype: MO), C. Luer illustr. 17750.

This attractive species was purchased by Doris Dukes at a Quito orchid show in 1994, and cultivated in Florida. Unfortunately collection data are unknown. Among the members of subsection *Alaticaules*, this species is distinguished by synsepal that decurves abruptly at the orifice of the cylindrical, sepaline tube. The acute apices are attenuated into relatively short tails. The long-attenuate dorsal sepal decurves. The petals are oblong, and the oblong lip is white below the middle and black above the middle with an obtuse, minutely verrucose apex.

Masdevallia ejiriana Luer & Portilla, sp. nov.

Ety.: Named for Munekazu Ejiri, of Chiba, Japan.

Inter species subsect. *Oscillantes*, habitu mediocri, sepalis albis longissime caudatis, petalorum callo marginali supra basim minute dentato, et labello fimbriato alato distinguitur.

Plant medium in size for the subsection, epiphytic, caespitose; roots slender; ramicauls blackish, slender, erect, 0.5-1 cm long, enclosed by 2-3 loose, black, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 3.5-4 cm long including the petiole 1-1.5 cm long, the blade broadly elliptical, obtuse to rounded at the apex, 1.2-1.6 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 3 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 11 mm long; ovary 6 mm long; **sepals** white, glabrous externally, microscopically pubescent within, the dorsal sepal suborbicular, concave, 9 mm long, 7.5 mm wide, connate to the lateral sepals for 4 mm to form a broad cup, the apex rounded, abruptly contracted into a slender, white, reflexed tail 5 cm long, the lateral sepals broadly elliptical-oblong, 12 mm long, 9 mm wide, connate 6 mm, the apices oblique, rounded, abruptly contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 6 mm long, 2.25 mm wide, the apex broadly bilobed, the lower margin with a longitudinal callus ending in a small, descending process above the base; **lip** heavily suffused with red-purple, trilobed, 6.5 mm long, 4.6 mm wide expanded, the margins thin and expanded into triangular lobes on the middle third, with the edges fimbriate, the apical third coarsely erose, the tip decurved with a large midline callus, the disc sulcate on the middle third between calli from the thick, distal third, subcordate, hinged beneath; **column** white, semiterete, 5.5 mm long, the foot 2 mm long with an incurved extension.

ECUADOR: **Morona-Santiago**: Pangui, alt. 1500 m, collected 20 Apr. 1996 by J. Portilla, cultivated at Ecuagenera, Gualaceo, Ecuador, Oct. 1999, *J. Portilla 19* (Holotype: MO), C. Luer illustr. 19244.

This species of subsect. *Oscillantes* is superficially similar to *M. andreettana* Luer. The flowers of both species are white with broadly expanded lateral sepals. The petals are also similar with a small, descending tooth above the base. The lip of *M. ejiriana* is distinguished by the prominent, fringed wing-like lobes on the middle third.

Masdevallia fosterae Luer, sp. nov.

Ety.: Named in honor of the late Elizabeth Foster of Bay Village, Ohio, who submitted the species for identification

Inter species sect. *Alaticaulium*, planta mediocre, pedunculo folio longiore, sepalis gracile caudatis, sepalis lateralibus semiconnatis apice rotundis abrupte caudatis et ovario profunde fisso distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 1.5-2 cm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 6-11 cm long including the 1-2 cm long petiole, the blade elliptical, obtuse, 2-2.5 cm wide, cuneate below into the petiole. **Inflorescence** a single flower, soon followed by a second in a congested, few-flowered raceme, borne by an erect, trique-

trous peduncle 9-12 cm long, with a basal bract, from near the base of a ramicaul; floral bract inflated, 12 mm long; pedicel 8-12 mm long; ovary 3 mm long, deeply fissured between carpels; **sepals** fleshy, glabrous, the blade of the dorsal sepal obovate, ca. 15 mm long, 6 mm wide, connate to the lateral sepals for 8 mm to form a campanulate tube, the apex acute, contracted into a slender, forwardly directed tail ca. 22 mm long, the lateral sepals oblong, oblique, the 15 mm long, 8 mm wide, connate for 6 mm, the apices rounded, abruptly contracted into slender tails 18 mm long; **petals** oblong, 7 mm long, 2 mm wide, the apex rounded, microscopically apiculate, the labellar half longitudinally callous; **lip** oblong, 6 mm long, 2 mm wide, the disc shallowly sulcate between oblique marginal folds above the middle, the epichile obtuse, subverrucose with crenulate margins, the hypochile oblong, subcordate at the base, hinged beneath; **column** semiterete, 5.5 mm long, the foot 3 mm long with a short, incurved extension.

Without collection data, cultivated in Bay Village, Ohio, submitted for identification, Nov. 1991, by the late *Mrs. Elizabeth Foster 7718* (Holotype: MO), C. Luer illustr. 15530.

Although no collection data are known, I do not believe that this taxon is hybrid in origin. Eventually, another collection will appear. Among the species of this section, *M. fosterana* is distinguished by a ramicaul longer than the leaf, and a congested, successively flowered raceme. The sepals are slender-tailed; the dorsal sepal is acute and the laterals are rounded and abruptly caudate. The petals are oblong with a longitudinal callus above the margin. The lip is not particularly distinctive. The ovary is triangular in cross section with deep clefts between the carpels.

Masdevallia merinoi Luer & Portilla, sp. nov.

Ety.: Named for Gilberto Merino of Gualaceo, Ecuador, who collected this species.

Inter species sect. *Amaluzae*, habitu mediocri, sepalis striatis longissime caudatis, petalis acutis cum callo humili et labello oblongo apice rotundo minute eroso distinguitur.

Plant small, epiphytic, caespitose; roots slender; ramicauls slender, erect, 0.8-1 cm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-5.5 cm long including the petiole 1.5 cm long, the blade elliptical, acute, 1-1.2 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a successive, few-flowered raceme, borne by a slender, suberect to horizontal peduncle 7-8 mm long, with a bract at the base and another on the lower quarter, from low on the ramicaul; floral bract tubular, 5-7 mm long; pedicel 7 mm long; ovary 4 mm long; **sepals** dull white, striped with red-purple, glabrous, the dorsal sepal oblong, 15 mm long, 7 mm wide, connate to the lateral sepals for 9 mm to form a cylindrical tube, the apex acute, acuminate into a slender, white tail 4 cm long, the entire length 5.5 cm, the lateral sepals broadly subovate, oblique, 6 cm long, connate 12 mm into a lamina 13 mm wide, the apices acute, attenuated into slender tails; **petals** white, elliptical, acute, 6.5 mm long, 1.8 mm wide, callous on the lower half on the middle third; **lip** suffused with red-purple, oblong, 8.5 mm long, 3 mm wide, the apex rounded, minutely erose, disc longitudinally sulcate between a pair of low calli, the base decurved, subcordate, hinged beneath; **column** white, semiterete, 4.5 mm long, the foot 4 mm long including the incurved extension.

ECUADOR: **Zamora-Chinchipe**: above Valladolid, alt. 1600 m, collected June 1998 by Gilberto Merino, cultivated at Ecuagenera, Gualaceo, Ecuador, Oct. 1999, *J. Portilla 14* (Holotype: MO), C. Luer illustr. 19254.

Among the species of sect. *Amaluzae*, this species is most closely allied to *M. manchinazae* Luer & Hirtz, but differs in the larger flower with the sepaline tube thrice longer, and the lateral sepals are free a short distance beyond the tube. The lateral sepals of *M. manchinazae* are deeply connate far beyond the tube. Except for being larger, the petals and lip are basically similar. The lip of *M. merinoi* is minutely verrucose with the verrucae low and elongate, with the apex round and minutely erose. The lip of *M. manchinazae* is smooth and entire.

Masdevallia rana-aurea Luer, sp. nov.

Ety.: From the Latin *rana aurea*, "golden frog," as called by Andrés Maduro.

Species haec *M. os-viperae* Luer & Andreetta affinis, sed foliis anguste ovatis acutis, sepalis petalis labelloque aurantiacis vividis, sepalorum intus glaberrimis differt.

Plant medium in size, presumably epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 5-9 cm long including the blackish petiole 2-2.5 cm long, the blade elliptical, acute, 1.8-2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower with all parts orange, borne by a slender, suberect peduncle, 4-5 cm long, from low on the ramicaul; floral bract tubular 8 mm long; pedicel 8 mm long; ovary 6 mm long; **sepals** glabrous, the dorsal sepal oblong-ovate, 19 mm long, 9 mm wide, obtuse, contracted into a slender, forwardly directed tail 2.5-3 cm long, connate to the lateral sepals for 15 mm into a slightly compressed, infundibular tube, the lateral sepals connate 20 mm into a widely expanded, bifid lamina, 30 mm long, 24 mm wide, the apices acute, contracted into slender tails ca. 1.5 cm long; **petals** cartilaginous, oblong, obtuse-subtruncate, 8 mm long, 2.5 mm wide, with a longitudinal callus along the labellar margin, terminating above the base in an acute process; **lip** oblong, 7 mm long, 2 mm wide, with the margins minutely undulate, the apex obtuse with a small, midline callus, the disc with a smooth, callus below the middle, forked into a pair of parallel calli above the middle, shallowly concave between, the base subcordate, hinged beneath; **column** semiterete, 6 mm long, the foot 3 mm long with a slender, free extension.

PERU: Without collection data, obtained from J. Meza T., cultivated by Maduro's Tropical Flowers, Cerro Punta, Panamá, 16 November 1998, *C. Luer 18976* (Holotype: MO).

This species, reportedly obtained from J. Meza in Peru, is similar to *M. os-viperae* Luer & Andreetta from southeastern Ecuador. The leaves of *M. rana-aurea* are elliptical, not narrowly ovate and acute. The color of all the floral parts of *M. rana-aurea* is pure orange, the same color seen in *M. hirtzii* Luer & Andreetta. The sepals are connate into a slightly compressed, narrowly cylindrical tube with the free portions broadly expanded, but totally glabrous as in *M. hirtzii*. The petals, lip and column are similar to those of *M. os-viperae*.

Masdevallia schudelii Luer, sp. nov.

Ety: Named for George Schudel, president of the Pleurothallid Alliance, who obtained and cultivated this species.

Inter species sectionis *Alaticaulium*, pedunculo gracili folio anguste obovato longiore, racemo subdenso, sepalis in tubum brevissimum connatis, synsepalo ovato apicibus acutis contiguis in caudas acuminatis distinguitur.

Plant medium in size, epiphytic, caespitose; roots fleshy. Ramicauls erect, slender, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 10-12 cm long including an indistinct petiole ca. 2 cm long, the blade narrowly elliptical-obovate, subacute, 1.5-1.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a subcongested, few-flowered raceme of successive flowers, borne by a slender, erect, triquetrous peduncle 14 cm long, with a bract at the base, from the base of a ramicaul; floral bracts tubular, 14-15 mm long; pedicel 15 mm long; ovary green, 6 mm long; **sepals** glabrous extemally, microscopically verrucose within, the dorsal sepal light yellow, the blade ovate, acuminate into an erect, yellow tail, the entire length 40-47 mm long, 7 mm wide, connate to the lateral sepals for 4 mm to form a short, cylindrical, gaping tube, the lateral sepals dark purple, connate 25 mm into an expanded, bifid synsepal ca. 25 mm long, 17 mm wide, the apices, approximate, acute, acuminate into slender, yellow tails 1.5-2 cm long; **petals** white, more or less oblong, 7 mm long, 2 mm wide above the base, the apex subtridentate, with a longitudinal carina on the labellar half, terminated with a low, obtuse process above the base, obscurely angled on the upper margin above the base; **lip** white, diffusely dotted with purple, oblong-subpandurate, 6 mm long, 2 mm wide, with broad, obtuse, marginal folds near the middle, the epichile ovate, obtuse, microscopically subverrucose, concave below with a small, subapical callus, the disc shallowly channeled between the folds, the hypochile oblong, subtruncate, hinged on the end; **column** greenish white, semiterete, 5.5 mm long, the foot 2.5 mm long including a short, incurved extension.

ECUADOR: Without collection data, obtained from J. Portilla, flowered in cultivation in Middleburg, FL, March 1998, by *G. Schudel s.n.* (Holotype: MO), C. Luer illustr. 18786. **Morona-Santiago**: near Macas, alt. 1400 m, collected by *J. Portilla 38* (MO).

This species is apparently endemic in eastern Ecuador. It is characterized by a slender, triquetrous peduncle that slightly exceeds the narrow leaf. The flowers in the few-flowered raceme are not crowded, the rachis being visible between floral bracts. The sepaline tube is very short and gaping; the tail of the dorsal sepal is erect; and the apices of the expanded synsepal are contiguous with crossing tails. The longitudinal callus of the petal ends in a low, conical protuberance.

Masdevallia trautmanniana Luer & Portilla, sp. nov.

Ety.: Named for Günter Trautmann of Stuttgart, Germany.

Inter species subsect. *Masdevalliae*, habitu mediocri, sepalis stramineis ad basim roseosuffusis antrorsis obtusis anguste caudatis, petalorum callo marginali ad basim in processum acutum retrorsum elongato, et labello anguste oblongo subacuto distinguitur.

Plant medium in size for the subsection, epiphytic, caespitose; roots slender; ramicauls blackish, slender, erect, 1-1.5 cm long, enclosed by 2-3 loose, black, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 7-9 cm long including the blackish petiole 2.5 -3 cm long, the blade elliptical, subacute to obtuse, 1.5 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 3 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 7 mm long; pedicel 5-7 mm long; ovary 4.5 mm long; **sepals** pale dull yellow, lightly suffused with pale rosy orange, glabrous, the dorsal sepal oblong, 16 mm long, 8 mm wide, connate to the lateral sepals for 12 mm to form a cylindrical tube, the obtuse apex contracted into a forwardly directed, slender, yellowish tail 18 mm long, the lateral sepals oblong, 25 mm long, 10 mm wide, connate 15 mm, the free portions rounded, contracted into tails 11-12 mm long; **petals** white, oblong, 7 mm long, 2.5 mm wide, the apex subtruncate, obscurely bilobed, the lower margin with a longitudinal callus, ending in an acute, retrorse tooth beyond the base; **lip** rose, narrowly oblong, 8 mm long, 2 mm wide, the apex subacute, slightly recurved, the disc with a pair of low, longitudinal calli from the thickened base to near the apex, the base truncate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 3 mm long with the extension 1 mm long.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, alt. 2000 m, collected Feb. 1997 by Hugo Medina, cultivated at Ecuagenera, Gualaceo, Ecuador, Oct. 1999, *J. Portilla 17* (Holotype: MO), C. Luer illustr. 19245.

This species of sect. *Masdevallia* is characterized by the short peduncle and pastel-colored flower with relatively short, forwardly directed tails. The basal tooth of the petals is acute and elongated beyond the base. Most distinctive is the narrowly oblong lip with a pair of calli along nearly the entire length.

Masdevallia wuelfinghoffiana Luer & Portilla, sp. nov.

Ety.: Named for Rudolph Wülfinghoff of Stuttgart, Germany.

Inter species subsect. *Caudatae*, habitu mediocri, sepalis valde puniceis expansis obtusis longicaudatis, petalorum callo marginali basi breviter angulato, et labello elliptico apice calloso recurvo differt.

Plant medium in size for the subsection, epiphytic, caespitose; roots slender; ramicauls blackish, slender, erect, 1-1.5 cm long, enclosed by 2-3 loose, black, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4.5-6.5 cm long including the blackish petiole 2-2.5 cm long, the blade elliptical, obtuse to rounded at the apex, 1.7-2.2 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 5-6 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 11 mm long; ovary 5-6 mm long; **sepals** intense red-purple, microscopically cellular-glandular within, the dorsal sepal erect, elliptical-obovate, flat to more or less convex, 18 mm long, 13 mm wide, connate to the lateral sepals for 3 mm to form a widespread, shallow cup, the rounded apex abruptly contracted into a suberect or reflexed, slender, yellow tail 4 cm long, the lateral sepals elliptical-oblong, with the sides recurved in the natural position, 20 mm long, 13 mm wide, connate 6 mm into a shallow cavity beneath the column-foot, the apices rounded, contracted into tails slightly shorter than that of the dorsal sepal; **petals** white with purple midvein, oblong, 4 mm long, 1.5 mm wide, the apex subtruncate, obscurely bilobed, the lower margin with a longitudinal callus, ending in a short, obtuse angle at the base; **lip** erect, white, suffused with purple, elliptical, 4.5 mm long, 2.25 mm wide, the apex obtuse, recurved, with a midline, marginal callus, the disc with a low pair of longitudinal calli on the middle third, the base thickened, subcordate, hinged beneath; **column** white, semiterete, 4 mm long, the foot 2 mm long with a short extension.

ECUADOR: **Zamora-Chinchipe**: between Loja and Zamora, alt. 1800 m, collected Oct. 1997 by Gilberto Merino, cultivated at Ecuagenera, Gualaceo, Ecuador, Oct. 1999, *J. Portilla 10* (Holotype: MO), C. Luer illustr. 19243.

This species is closely allied to the *M. xanthina*-complex, but it is immediately distinguished by the intense, red-purple color of the sepals. It also differs with the dorsal sepal flat or convex instead of concave; and petals with the marginal callus ending in a short angle at the base instead of a thick, protruding process.

Masdevallia wuerstlei Luer, sp. nov.

Ety.: Named for Berthold Würstle of Spielberg, Germany, who cultivated this species for many years.

Species haec *M. medusae* Luer & Escobar persimilis, sed pedunculo tereti, racemo laxo et pedicelis longissimis tortuosis differt.

Plant large, presumably epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 3-5 cm long, enclosed by 2-3 close, thin, tubular sheaths. **Leaf** erect, thickly coriaceous, 9-17 cm long including the petiole 1.5-3 cm long, the blade narrowly elliptical, obtuse, 1.8-2.2 cm wide, gradually narrowed below into the petiole. **Inflorescence** a loose, simultaneously several-flowered raceme up to 8 cm long, of long-pedicellate flowers, borne by a stout, terete peduncle 27 cm long, with a thin bract near the middle and at the base of the ramicaul; floral bracts thin, not imbricating, tubular, 15 mm long; pedicels 3-5 cm long, tortuous; ovary green, 3 mm long; **sepals** green, spotted with purple-brown, minutely verrucose within, the dorsal sepal obovate, 12 mm long, 7.5 mm wide, connate to the lateral sepals for 3.5-5 mm to form a short, gaping, sepaline cup, the apex obtuse, acuminate into a slender tail green tail 2.5 cm long, the lateral sepals ovate, oblique with recurved margins, 12-15 mm long, 9 mm wide, connate basally for 2 mm, the apices subacute, contracted into green tails 1-2.2 cm long; **petals** white, oblong, 6 mm long, 1.5 mm wide, the apex oblique, minutely bi-apiculate, the labellar margin with a low, longitudinal callus, more or less thicker below the middle; **lip** white, diffusely dotted or speckled with red-purple, oblong-subpandurate, 6 mm long, 2.25 mm wide, with obtuse, marginal folds above near the middle, the epichile ovate, obtuse, minutely apiculate with a keel beneath, minutely verrucose, the hypochile oblong, subtruncate at the base, hinged beneath; **column** white, with purple along the margin, semiterete, 6.5 mm long, the foot 4 mm long with an incurved extension.

COLOMBIA: Without collection data, obtained from Hubein, cultivated by B. Würstle at Spielberg, Germany, 29 August 1982, *C. Luer 8129* (Holotype: SEL).

This species, obtained from a collector without data except for Colombia, has been in cultivation by Berthold Würstle in Spielberg, Germany, for an unknown number of years. It has always produced loosely flowered racemes with long, tortuous pedicels. Except for being smaller with shorter tails, the flowers are similar to those of *M. medusa* from the Eastern Cordillera of Colombia.

Masdevallia medusa is characterized by a triquetrous peduncle and a congested raceme with imbricating floral bracts. The peduncle of *M. wuerstlei* is terete with a tubular bract near the middle, and with a loosely flowered raceme with rachis visible between floral bracts. The pedicels of both concepts are elongated, but those of *M. wuerstlei* are conspicuously twisted.

Whether or not this plant is an aberration of *M. medusa* is impossible to state for certain, but the terete peduncle with a bract is significant. The problem is similar to that of *M. schlimii* Lindl. with terete peduncles and *M. sceptrum* Rchb.f. with triquetrous peduncles. *Masdevallia infracta*, characterized by a triquetrous peduncle, produces on rare occasions a terete peduncle. However, a terete peduncle, together with a lax raceme and tortuous pedicels, suggest a specific difference. If *M. wuerstlei* were considered a form of *M. medusa*, for the same reasons *M. sceptrum* would be considered a form of *M. schlimii*.

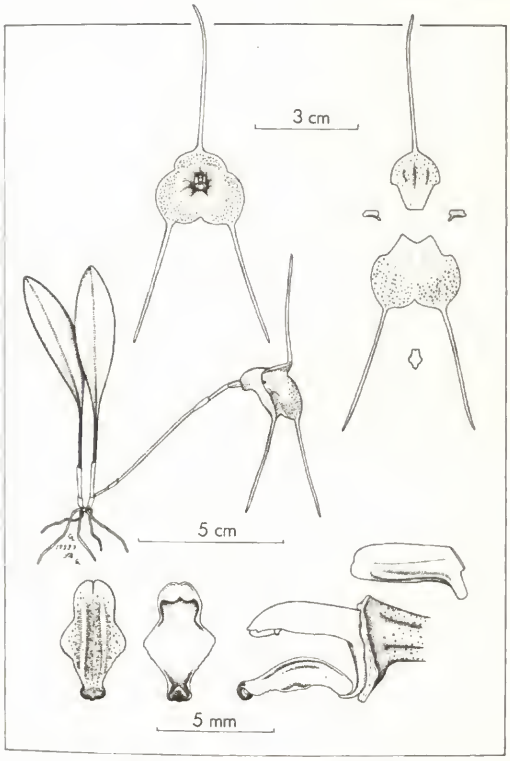


Fig. 1a. Masdevallia amoena

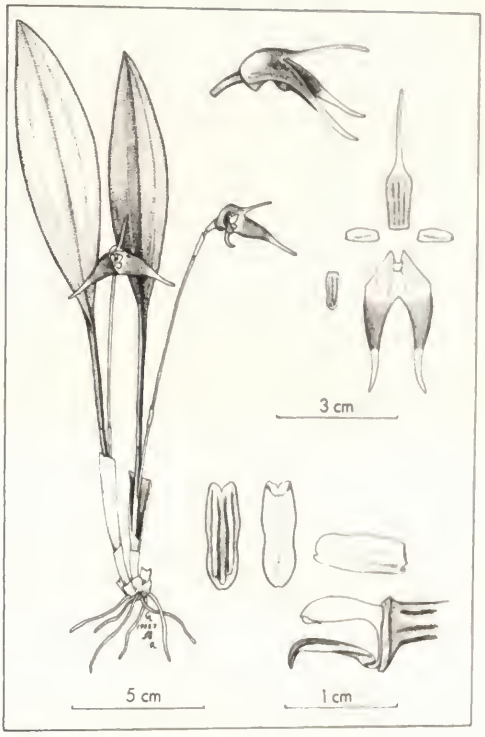


Fig. 2a. Masdevallia carpishica

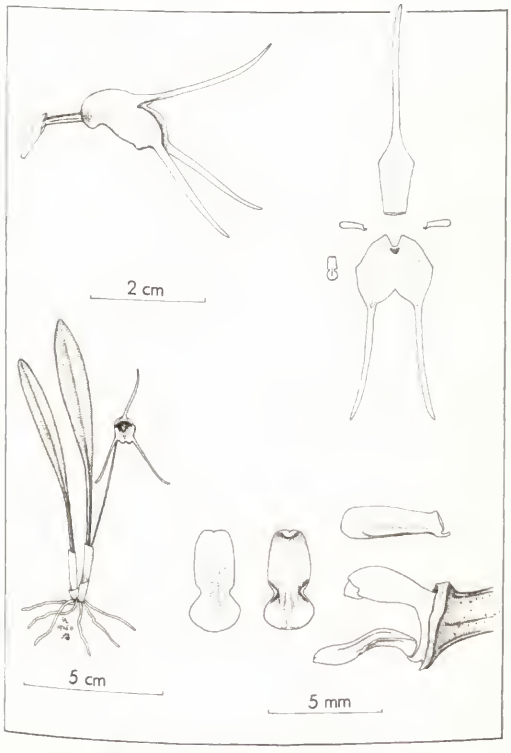


Fig. 3a. Masdevallia crassicaulis

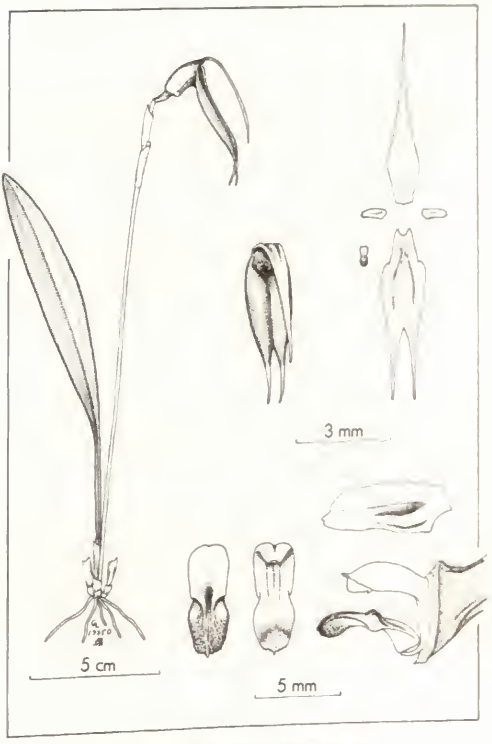


Fig. 4a. Masdevallia dorisiae

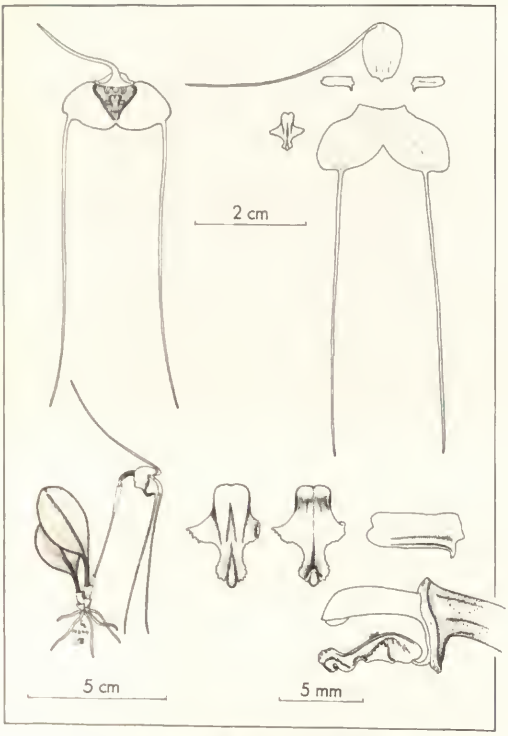


Fig. 5a. Masdevallia ejiriana

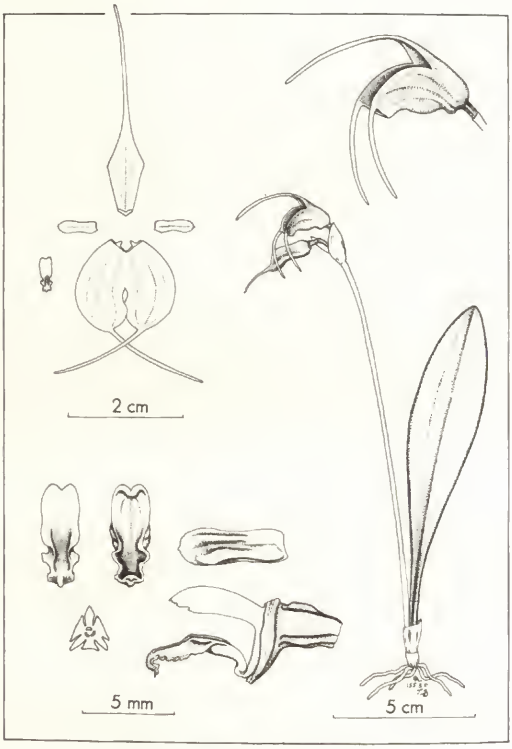


Fig. 6a. Masdevallia fosterae

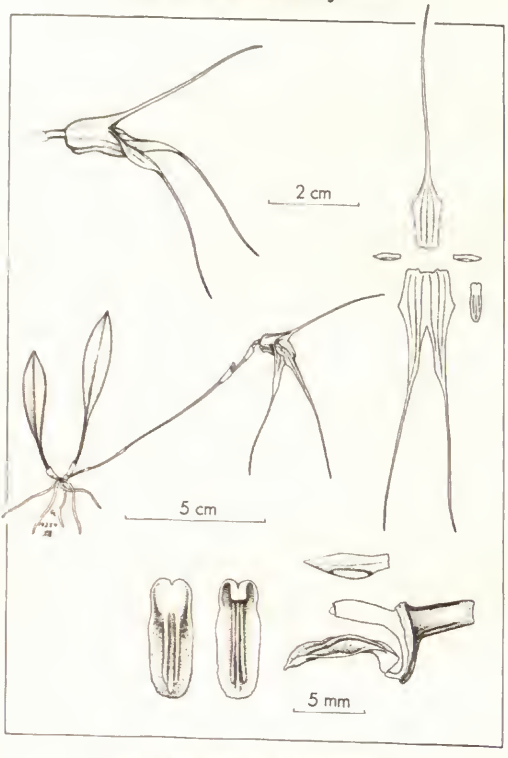


Fig. 7a. Masdevallia merinoi

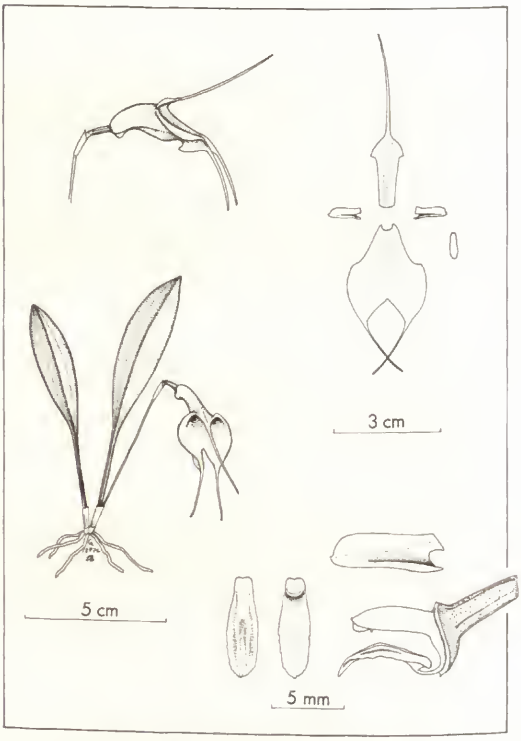


Fig. 8a. Masdevallia rana-aurea

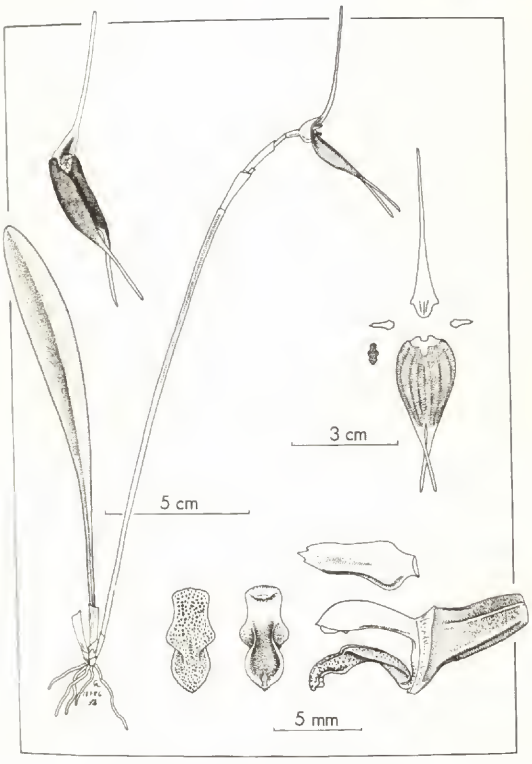


Fig. 9a. Masdevallia schudelii

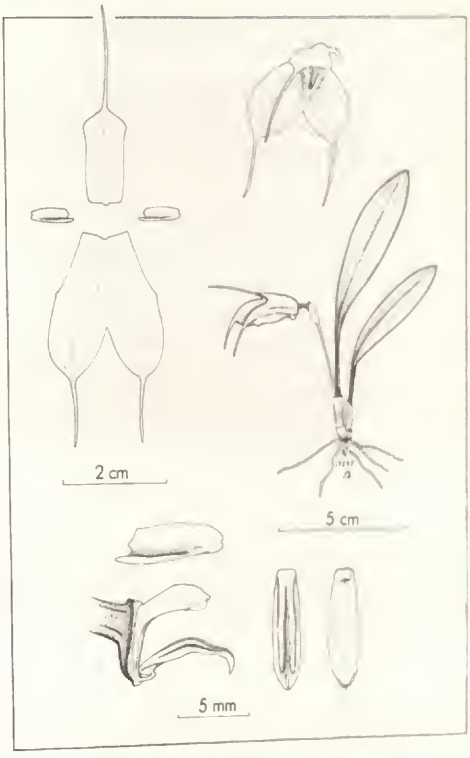


Fig. 10a. Masdevallia trautmanniana

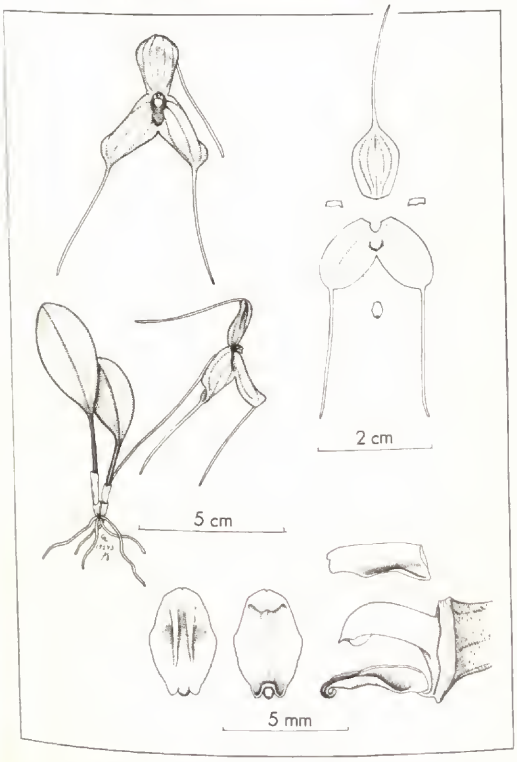


Fig. 11a. Masdevallia wuelfinghoffiana

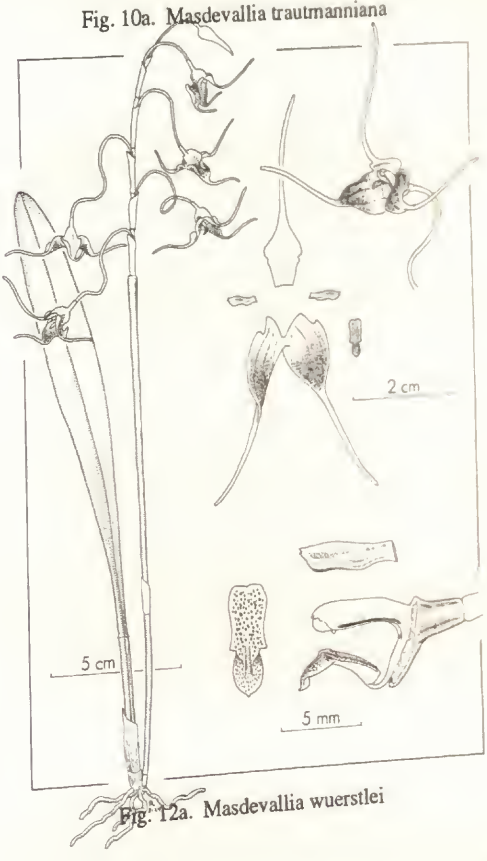


Fig. 12a. Masdevallia wuerstlei

Pleurothallis mammillata Luer, Selbyana 3: 138, 1976.

Ety.: From the Latin *mammillatus*, "with nipples," referring to the mammillate calli on the lip.

Plant small, epiphytic, shortly creeping to subcaespitose; roots slender. Ramicauls ascending, slender, 1.5-5 cm long, with a tubular sheaths below the middle, and another at the base. **Leaf** coriaceous, narrowly elliptical, acute, 3-6 cm long, 0.9-1.5 mm wide, the base cuneate in a subpetiolate base. **Inflorescence** a weak, arching, distichous, congested, many-flowered raceme, 8-11 cm long including the peduncle 1-2 cm long, with up to 30 flowers, from a spathe 4-6 mm long at the base of the leaf; floral bracts 1 mm long; pedicels 2-2.5 mm long; ovary 1-1.5 mm long; **sepals** membranous, pale green, ovate, acuminate, acute, concave, 3-4.5 mm long, 1-1.5 mm wide, 3-veined, free from the laterals, the lateral sepals connate into an ovate, narrowly obtuse, concave synsepal, 3-4.5 mm long, 1.5-2 mm wide, 4-veined; **petals** fleshy, oblong, obtuse, curved, 1.25 mm long, 0.4 mm wide; **lip** thick, obovate, obtuse, decurved near the middle, 1 mm long, 0.8 mm wide, the disc sulcate between a pair of small, mammillate calli near the middle, the base truncate, hinged to the tip of the column-foot; **column** stout, semiterete, 0.5 mm long, with a short, thick foot.

PANAMA: **Panama:** epiphytic on Cerro Jefe, alt. 1000 m, 2 Mar. 1976, cultivated 12 Apr. 1976, *C. Luer, H. Butcher, J. Luer & P. Taylor 951* (Holotype: SEL); Altos de Pacora road, alt. 650 m, *C. Luer, R.L. Dressler, J. Luer & P. Taylor 952* (SEL). **Colon**: Santa Rita lumber road, 27 Mar. 1968, *R.L. Dressler 3464* (SEL).

This little species, apparently endemic in eastern Panama, seems best treated in subgenus *Dracontia*, although the habit is unusually small for that subgenus. The species is not well accommodated in any of the other subgenera. It had been placed in subsection *Antenniferae*, but when the key was constructed, obvious inconsistencies became apparent.

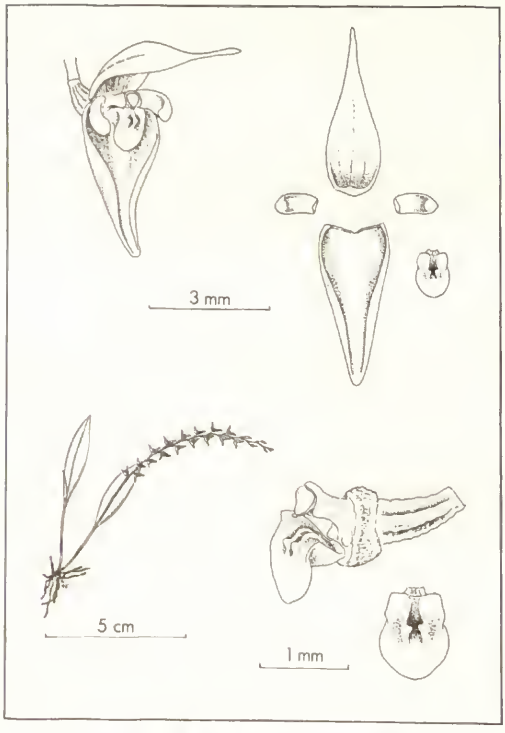


Fig. 13a. Pleurothallis mammillata

Pleurothallis mammillata is characterized by a habit superficially similar to *P. pruinosa* Lindl. with which it probably had been identified in the past. The narrowly elliptical leaves are about as long as the ramicaul, and the long, distichous raceme of small, pale green flowers far exceeds the leaf. The dorsal sepal and synsepal are acute; the petals are oblong, obtuse and thickened at the rounded apex, best suggesting its affinity with *Dracontia*. The lip is thickly ovate and obtuse with a tiny pair of mammillate calli in the center. The anther is short and terete with an apical anther. The column-foot has a pair of thick calli above the hinge with the lip.

MISCELLANEOUS NEW SPECIES OF *DRYADELLA*, *LEPANTHES* AND *PLEUROTHALLIS*

The following new species of *Dryadella* Luer, several of which are now in cultivation, had been awaiting publication in a future *Icones Pleurothallidinarum*. They are described here without the illustrations which will be published in the revision of the genus.

Dryadella acuminata Luer & Hirtz, sp. nov.

Ety.: From the Latin *acuminatus*, "acuminate," referring to the apices of the sepals.

Planta dense fasciculata foliis angustissime linearibus, sepalis ovatis longi-acuminatis, petalis multangulis, labelli lamina rhombiformi bicallosa.

Plant medium in size, epiphytic, densely caespitose-fasciculate; roots fleshy. Ramicauls erect, 2-3 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, narrowly linear, acute, 3-6 cm long, 2-2.5 mm wide, gradually narrowed below to the base. **Inflorescence** a congested, successively few-flowered raceme borne by a peduncle 5-6 mm long, enclosed by a sheath, from low on the ramicaul; floral bracts thin, imbricating, 6 mm long; pedicel 6-7 mm long; ovary 1.5 mm long, glandular-cellular; **sepals** light green, more or less spotted with purple, subcarinate, the dorsal sepal ovate, concave, 10 mm long including the tail 5 mm long, 4 mm wide, the apex acute, acuminate into the tail, connate to the lateral sepals for 0.5 mm to form a sepaline cup, the lateral sepals ovate, oblique, acute, acuminate, 9 mm long, 2.5 mm wide, connate 1 mm at the base, with a transverse callus above the deflexed base, the margins cellular-erose; **petals** translucent green, multi-angled-oblong, 1.5 mm long, 1.5 mm wide, the apex transverse, obliquely truncate, with an acute angle on the upper margin of the apex, with a subacute lobule on the labellar margin; **llp** light brown, unguiculate, the blade rhombic, 1.5 mm long, 1.5 mm wide, the apex broadly rounded, minutely denticulate, the base above the claw with a pair of acute, retrorse angles, the disc with a pair of erect, triangular lamellae below the middle, the claw 1 mm long, lightly channeled, bilobulate at the base, hinged to the apex of the column-foot; **column** green, 2.25 mm long, erose-winged on the distal half, denticulate at the apex, the foot equally long.

ECUADOR: **Bolívar**: epiphytic in cloud forest west of Guaranda toward Balzapamba, alt. 2000 m, 26 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & A. Hirtz 9737*, flowers light green (Holotype: MO); same locality and date, *C. Luer et al. 9738*, flowers spotted with purple (MO).

This little species is apparently endemic on the western slopes of the Andes of central Ecuador. Vegetatively, the ramicauls are produced in dense fascicles with intertwining, fleshy roots. The leaves are narrowly linear. The sepals are acute and long-acuminate. The obtuse petals are acutely angled on the upper margin of the apex, and subacutely angled on the labellar margin, but the shapes and sizes of the angles are variable. The blade of the lip is more or less flat with a broadly rounded, minutely denticulate margin and a pair of erect, triangular calli on the disc.

Dryadella aurea Luer & Hirtz, sp. nov.

Ety.: From the Latin *aureus*, "golden," referring to the yellow-orange flowers.

Species haec *D. simulae* (Rchb.f.) Luer similis, sed habitu floribusque multiminoribus, sepalis aureis non-maculatis, petalis sagittiformibus et labelli lamina crassa suboblonga differt.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, 2-4 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly linear-obovate, acute, 20-30 mm long, 3-3.5 mm wide, gradually narrowed below to the base. **Inflorescence** a solitary flower borne successively in a congested raceme by a peduncle less than 1 mm long, enclosed by a sheath, from low on the ramicaul; floral bracts thin, imbricating, 2-3 mm long; pedicel 2 mm long; ovary 0.75-1 mm long, trialate; **sepals** clear yellow-orange, the dorsal sepal ovate, concave, 5.5 mm long, 2.5 mm wide, the apex narrowly acute, thickened, connate to the lateral sepals for 1 mm to form a sepaline cup, the lateral sepals ovate, oblique, acute, acuminate, 5 mm long, 1.75 mm wide, connate 0.5 mm at the base, with a transverse callus above the decurved base, the margins cellular; **petals** orange, sagittate, 1.75 mm long, 1.75 mm wide, the apex obtuse, microscopically undulate, with an obtuse angle on the upper margin and an acute angle on the lower margin; llp yellow-green, unguiculate, the blade thick, sub-oblong, 1.5 mm long, 1 mm wide, the apex subtruncate to rounded, the base above the claw with a pair of acute angles, the disc with a pair of rounded lamellae just below the middle, the claw 0.75 mm long, bilobulate at the base, channeled longitudinally, hinged to the apex of the column-foot; **column** green, 1.75 mm long, longitudinally erose-winged on the distal half, bidentate at the apex, the foot equally long.

ECUADOR: **Morona-Santiago**: Cordillera del Cutucú, epiphytic in forest along the new road between Mendez and Morona, alt. 950 m, 17 Jan. 1989, *C. Luer, J. Luer, P. Jesup, A. Jesup & A. Hirtz 13963* (Holotype: MO).
PERU: **Pasco**: Oxapampa, Mirador ridge, Río Paujil, Parqué Nacional Yanachaga Chemillén, alt. 700 m, 20 Oct. 1993, *R. Fernandez 28* (MO, USM).

This little species occurs in lowland southeastern Ecuador in the Cordillera del Cutucú and northeastern Peru. Superficially, it resembles most of the other species in the genus, but it is characterized by the small habit; narrowly obovate leaves; small, clear, yellow-orange to orange flowers; acute, acuminate but tailless sepals; and a thick, suboblong blade of the lip with a pair of low, rounded carinae below the middle.

Dryadella butcheri Luer, sp. nov.

Ety.: Named in honor of Henry Butcher of Volcán, Chiriquí, long known for his keen knowledge of the orchids of Panama, who discovered this species.

Species haec *D. simulae* (Rchb.f.) Luer similis, sed habitu floribusque multiminoribus, sepalis anguste caudatis, petalis flabelliformibus et columnae alis uncinatis differt.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, 5-7 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical-obovate, subacute to obtuse, 15-20 mm long, 3 mm wide, gradually narrowed below to the subpetiolate base. **Inflorescence** a solitary flower borne successively in a congested raceme by a peduncle 1 mm long, enclosed by a sheath, from low on the ramicaul; floral bracts thin, acuminate, imbricating, 2-3 mm long; pedicel 2 mm long; ovary 0.75 mm long, trialate; **sepals** translucent green, diffusely spotted with purple, the dorsal sepal oblong, concave, subacute, acuminate into a terete tail 2.5 mm long, 6 mm long including the tail, 2 mm wide, connate to the lateral sepals for 0.5 mm to form a sepaline cup, the lateral sepals ovate, oblique, obtuse, contracted into slender tails 2 mm long, 5.5 mm long including the tail, 2 mm wide, connate 0.5 mm at the base, with a transverse callus above the decurved base, the margins more or less cellular-erose; **petals** translucent, spotted with purple, flabellate-sagittate, 2 mm long, 2.5 mm wide, broadly expanded above the middle with rounded marginal angles to the transverse or broadly truncate apex with a minute, acuminate apiculum, narrowed below the middle to the base with a lobule on the lower margin at the base; **lip** orange-brown, long-unguiculate, the blade subquadrate, the sides and apex reflexed, 1.75 mm long, 1.75 mm wide, the apex broadly rounded, the base above the claw with a pair of acute lobules directed posteriorly, the disc with a low, obtuse pair of calli from the claw, the claw 0.75 mm long, bilobulate at the base, channeled longitudinally, hinged to the apex of the column-foot; **column** green, 2 mm long, with a prominent pair of descending, uncinate wings between the middle and distal thirds, bidentate at the apex, the foot equally long.

PANAMA: **Chiriquí**: without locality, collected by H. Butcher, flowered in cultivation by P. & A. Jesup in Bristol, CT., 10 Dec. 1988, *C. Luer 13804A* (Holotype: MO). **Panamá**: Cerro Jefe, alt. 1000 m, 22 Sept. 1972, *A. Gentry 6177* (MO). Without locality, collected by Henry Butcher, *C. Luer 1032* (SEL). Without locality, collected by Tineka Mulder, flowered in cultivation at Wageningen, the Netherlands, 4 Sept. 1987, *C. Luer 12923* (MO).

This little species is found relatively frequently in Panama, first having been known from collections by Henry Butcher of Volcán in the Chiriquí. It is readily recognized by the very small habit, small spotted flowers with caudate sepals, flabellate petals, and the uncinate-winged column. The columnar processes are similar to those of the much larger *D. cuspidata* of lowland, eastern Ecuador.

Dryadella cuspidata Luer & Hirtz, sp. nov.

Ety.: From the Latin *cuspidatus*, "cuspidate," referring to the descending, tusk-like processes of the column.

Species haec *D. simulae* (Rchb.f.) Luer similis, sed ovario cristato, petalorum margine inferiore cum lobo magno oblique truncato et columnae alis profunde cuspidatis differt.

Plant medium in size to large for the genus, epiphytic, densely caespitose; roots slender. Ramicauls erect, 5-12 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, more or less suffused with purple, coriaceous, narrowly linear-obovate, subacute to acute, 4-9.5 cm long, 5-6 mm wide, gradually narrowed below to the base. **Inflorescence** a congested, successively few-flowered raceme borne by a peduncle 1-2 mm long, enclosed by a sheath, from low on the ramicaul; floral bracts thin, imbricating, 5-

10 mm long; pedicel 3-6 mm long, verrucose; ovary 1-1.5 mm long, tricristate; **sepals** yellow-green, diffusely spotted with purple-brown, subcarinate, the dorsal sepal ovate, acute, concave, 7-10 mm long including the thick tail 2-3 mm long, 3-5 mm wide, connate to the lateral sepals for 1 mm to form a sepaline cup, the lateral sepals ovate, oblique, acute, 6-9 mm long including the tail 2-3 mm long, 3 mm wide, connate 0.5 mm at the base, with a transverse callus above the decurved base; **petals** translucent cream with purple markings, suboblong, 2-2.75 mm long, 2.5 mm wide, the apex broadly obtuse, with the upper margin rounded or with a minute angle, and with a decurved, obliquely angled or truncate lobe on the lower margin; **lip** purple, unguiculate, the blade elliptical, 2.5 mm long, 1.75-2 mm wide, the apex rounded, the base above the claw with a pair of acute, retrorse lobules, the disc with a pair of lamellae below the middle, the claw broad, 1 mm long, bilobulate at the base, concave, hinged to the apex of the column-foot; **column** green, 3 mm long, with a marginal pair of descending, narrowly triangular wings near the middle, the foot nearly equally long.

ECUADOR: **Morona-Santiago**: Cordillera del Cutucú, epiphytic in forest along the new road between Mendez and Morona, alt. 950 m, 18 Jan. 1989, *C. Luer, J. Luer, P. Jesup, A. Jesup & A. Hirtz 13977* (Holotype: MO). **Napo**: Río Jatunyacu above Shandia, alt. 650 m, *A. Hirtz & S. Ortega 5373* (MO). **Zamora-Chinchipe**: between Patuca and Santiago, flowered in cultivation 24 Apr. 1990, *F L Stevenson 91-424-1* (MO).
COLOMBIA: **Putumayo**: above Mocoa, alt. 600-800 m, collected by J.M. Sema, Aug. 1977, flowered in cultivation by M. & O. Robledo at La Ceja, 23 July 1978, *C. Luer 2957* (SEL).

This species occurs on the lower, eastern slopes of the Andes of southern Colombia and Ecuador. Superficially, it resembles *D. simula*, but *D. cuspidata* is distinguished by the crested ovaries with the crests extending onto the carinae of the lateral sepals; more caudate sepals; petals with an obliquely truncate lobe on the lower margin of the apex; and the column with a pair of prominent, acute, descending, toothlike lobes.

Dryadella dodsonii Luer, sp. nov.

Ety.: Named in honor of Calaway H. Dodson who discovered this species.

Inter species generis *Dryadellae* habitu parvo repenti, rhizomate ascendenti, foliis angustissime linearibus, pedunculo pedicelloque brevissimis, floribus parvis punctatis cum sepalis caudatis et petalis brevissimis latissimis distinguitur.

Plant small in size for the genus, epiphytic, repent, the rhizome ascending, suberect, 2 mm long between ramicauls; roots slender. Ramicauls ascending, 2-3 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, narrowly linear, canaliculate, acute, 20-25 mm long, 2 wide, 1 mm thick, gradually narrowed below to the subpetiolate base. **Inflorescence** a solitary flower borne singly by a peduncle up to 1 mm long, enclosed by a sheath, from low on the ramicaul; floral bract thin, inflated, 3 mm long; pedicel 1.5 mm long; ovary 1 mm long, cellular-glandular; **sepals** yellow, diffusely dotted with red-brown, with the margins and veins cellular glandular externally, the dorsal sepal oblong, concave, 3.5 mm long, 2 mm wide, the apex obtuse, contracted into a thick tail 3.5 mm long, connate to the lateral sepals for less than 1 mm to form a gaping sepaline cup, the lateral sepals broadly ovate, oblique, 3 mm long, 2.5 mm wide, the apex obtuse, contracted into a tail 3 mm long, connate at the base of 0.75 mm, with a transverse callus above the decurved base; **petals** translucent yellow, dotted with red, transversely ovate-sagittate, 1.5 mm long, 2.5 mm wide, the apex transversely obtuse, with an obtuse angle on the lower margin at the base with a small callus; **lip** light brown, long-unguiculate, the blade subquadrate, the rounded apex reflexed, 2 mm long, 2 mm wide, the disc with a pair of low, conical calli below the middle, the claw 1.5 mm long, bilobulate at the base, channeled longitudinally, hinged to the apex of the column-foot; **column** slender, 2 mm long, longitudinally winged above the middle with the margins erose, the foot channeled, equally long.

ECUADOR: **Esmeraldas**: epiphytic in moss in pluvial forest west of Lita toward San Lorenzo, alt. 220 m, collected by C.H. Dodson, N.H. Williams & M. Whitten, flowered in cultivation at Río Palenque, 15 Aug. 1991, *C.H. Dodson 18798* (Holotype: MO), C. Luer illustr. 15527; same area, alt. 300 m, 12 Jan. 1992, *C. Luer, A. Hirtz et al. 15580* (MO).
COLOMBIA: **Valle del Cauca**: Buenaventura, Quebrada Yesqueros, old road between Cali and Buenaventura, alt. 50 m, 9 May 1997, *J.T. Otero & B. Angulo C. 1003* (CUVC, MO).

This little species, superficially resembling a species of *Pachyphyllum*, was found growing in deep moss in lowland northwestern Ecuador where the rainfall is exceedingly great. *Dryadella dodsonii* is distinguished by the repent, ascending, suberect to erect habit with suberect, slender leaves two millimeters wide. The

peduncle and pedicel of the tiny flower are extremely short, placing the flower at the bottom of a leaf. The sepals are spotted with slender tails about as long as the blade, and the broad, flabellate petals are extremely short.

Dryadella dressleri Luer, sp. nov.

Ety.: Named in honor of Dr. Robert L. Dressler, formerly of the Smithsonian Tropical Research Institute in Balboa, Canal Zone, who discovered many new species during his many years in Panama.

Species haec *D. simulae* (Rchb.f.) Luer similis, sed habitu minore, sepalo dorsali angustiore longi-acuminato, petalis oblique sagittatis marginibus angulatis non-lobulatis et labelli lamina sulcata differt.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, 1-3 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical-obovate, subacute to obtuse, 15-35 mm long, 5-6 mm wide, gradually narrowed below to the subpetiolate base. **Inflorescence** a solitary flower borne successively in a congested raceme by a peduncle 1-2 mm long, enclosed by a sheath, from low on the ramicaul; floral bracts thin, imbricating, 3 mm long; pedicel 1-1.5 mm long; ovary 1 mm long, trialate; **sepals** greenish, diffusely marked with purple in small, transverse bars, the dorsal sepal ovate, concave, subacute, acuminate into a short tail, 6.5-7 mm long, 2-2.5 mm wide, connate to the lateral sepals for 1 mm to form a sepaline cup, the lateral sepals ovate, oblique, acute, acuminate, 6-6.5 mm long, 2.5-3 mm wide, barely connate at the base, with a transverse callus above the decurved base; **petals** greenish brown, subquadrate, sagittate, 2 mm long, 2 mm wide, the apex obtuse, obtusely angled on both margins below the apex; **lip** orange-brown, long-unguiculate, the blade subquadrate, the sides and apex reflexed, 1.5 mm long, 1.5 mm wide, the apex broadly rounded, the base above the claw with a pair of acute lobules directed posteriorly, the disc with a low rounded pair of calli from the claw flanking a deep, central sulcus, the claw 0.5 mm long, bilobulate at the base, channeled longitudinally, hinged to the apex of the column-foot; **column** green, marked with purple, 2 mm long, longitudinally winged in the distal half, the foot equally long.

PANAMA: **Canal Zone**: epiphytic in forest along Río Piedras near Colón, alt. ca. 100 m, collected by R.L. Dressler, cultivated in Balboa, 18 Feb. 1985, *C. Luer 10627* (Holotype: MO); Quebrada López, alt. 30 m, 11 Feb. 1940, *P. H. Allen 2115* (MO); Santa Rita Ridge near Colón, alt. ca. 100 m, collected by F L Stevenson, cultivated in Chamblee, GA., 26 Jan. 1975, *C. Luer 500B* (SEL). **Colón**: road to Puertobelo, Río Gaunche, 6 Oct. 1975, *J.T. Witherspoon & F. Witherspoon 8682* (MO).

This species, apparently confined to the lowlands of central Panama, is most closely related to *D. sororcula* from western Panama and Central America. The habit is small, but the transversely banded flowers are nearly as large as those of the similar *D. simula* from the Andes. The three sepals are narrowly ovate and more or less thickly caudate, the tails almost as long as the blades. The sagittate petals are similar to those of *D. sororcula*. The characteristic lobule below the apex of the petal of *D. simula* is not present. In common with *D. sororcula* the blade of the lip is deeply channeled centrally between the calli.

Dryadella fuchsii Luer, sp. nov.

Ety.: Named in honor of the late Fred Fuchs, Jr. of Naranja, FL, who so generously shared his many collections.

Species haec *D. simulae* (Rchb.f.) Luer similis, sed habitu floribusque brevioribus, petalis oblique sagittatis marginibus angulatis non-lobulatis et labelli lamina cum callis parvis acutissimis differt.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, 3-5 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** dark green, suffused with purple along the margins, erect, coriaceous, narrowly linear-obovate, subacute to acute, 20-27 mm long including an ill-defined petiole 5-8 mm long, 3-4 mm wide, gradually narrowed below to the base. **Inflorescence** a successive flower borne by a peduncle 1-2 mm long, from low on the ramicaul; floral bracts thin, speckled with purple, 2 mm long; pedicel 2-3 mm long; ovary 1 mm long, tricostate; **sepals** light green, with transverse, purple spots, subcarinate, the dorsal sepal oblong-ovate, acute, acuminate into a short tail, 5 mm long including the tail 1.5 mm long, 2 mm wide, barely connate to the lateral sepals to form a sepaline cup, the lateral sepals broadly ovate, oblique, obtuse, contracted into a tail 1 mm long, 3.5 mm long including the tail, 2.25 mm wide, barely connate at the base, with a transverse callus above the decurved base; **petals** translucent

green, suffused with purple, suboblong, 1.75 mm long, 1.25 mm wide, the apex broadly obtuse, with the upper margin obtusely angled at the apex, with an acute angle on the lower margin; **lip** brownish green, unguiculate, the blade elliptical-oblong, 1.25 mm long, 1.25 mm wide expanded, the apex rounded, deflexed, the base above the claw acutely angled, the disc with a small pair of acute, antrorse calli just below the middle, the claw broad, 0.5 mm long, minutely bilobulate at the base, concave, hinged to the apex of the column-foot; **column** mottled with purple, 2 mm long, longitudinally winged above the middle, the foot equally long.

HONDURAS: Without locality, collected by F. Fuchs, flowered in cultivation, 31 Aug. 1981, *C. Luer 6450* (Holotype: SEL). **Chontales**: Babilonia Mine, alt. 750 m, *A. Heller 6972* (SEL). **Zelaya**: Cerro Musún, alt. 900 m, *A. Heller 5081* (SEL).

This species is apparently endemic in Honduras. Although superficially similar to many species, it is distinguished by the small habit with slender leaves less than three centimeters long; small, short-stemmed flowers; shortly tailed sepals marked with transverse, purple spots; petals with an acute angle on the lower margin; and a lip with a small pair of acute, antrorse calli just below the middle.

Dryadella pachyrhiza Luer & Hirtz, sp. nov.

Ety.: From the Greek *pachyrhiza*, "a thick root," referring to the fleshy roots.

Species haec *D. simulae* (Rchb.f.) Luer similis, sed habitu minore, rhizomatibus crassisimis, foliis brevibus angustissime semiteretibus, petalis sagittatis et labelli lamina brevibicallosa differt.

Plant small in size for the genus, epiphytic, densely caespitose; roots fleshy, very thick; Ramicauls erect, 8-10 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, more or less suffused with purple, narrowly linear, semiterete, acute, 20-25 mm long, 2 mm thick, gradually narrowed below to the subpetiolate base. **Inflorescence** a solitary flower borne singly by a peduncle 4-5 mm long, enclosed by a sheath, from low on the ramicaul; floral bract thin, 6-7 mm long; pedicel 7-8 mm long; ovary 1 mm long, trialate; **sepals** cream-colored, diffusely dotted with brown, the dorsal sepal ovate, concave, 6 mm long, 5 mm wide expanded, the apex obtuse, contracted into a thick tail 5 mm long, connate to the lateral sepals for 2 mm to form a sepaline cup, the lateral sepals ovate, oblique, with the margins cellular-erose, 5 mm long, 3 mm wide, the apex acute, contracted into a tail 4 mm long, barely connate at the base, with a transverse callus above the decurved base; **petals** translucent brown, subquadrate, sagittate, 2 mm long, 2 mm wide, the apex obtuse, obtusely or subacutely angled on both margins below the apex; **lip** light brown, long-unguiculate, the blade subovate, the rounded apex reflexed, 2.5 mm long, 2.5 mm wide, the base above the claw with a pair of acute lobules directed posteriorly, the disc with a low pair of rounded calli below the middle, the claw 1.5 mm long, bilobulate at the base, channeled longitudinally, hinged to the apex of the column-foot; **column** green, 2 mm long, longitudinally winged above the middle, the foot equally long.

ECUADOR: **Bolívar**: epiphytic in humid forest west of Guaranda, old road to Puertoviejo alt. 3100 m, 26 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & A. Hirtz 9742* (Holotype: MO); same area, alt. 2700 m, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & A. Hirtz 9741* (MO).

This little species occurs at high altitudes of the western Andes of central Ecuador. It is distinguished from the frequent Andean *D. simula* by the smaller habit with thick, fleshy roots; short, narrowly linear, semiterete leaves; and smaller flowers. All three sepals are caudate, with the slender tails as long as the blades. The petals are more or less sagittate and obtuse at the apex with angles on both margins below the apex. The characteristic lobule below the apex of the petal of *D. simula* is not present. A pair of short, lunate calli are present below the middle of the blade of the lip.

Dryadella rodrigoi Luer, sp. nov.

Ety.: Named in honor of Rodrigo Escobar R. of Medellín, Colombia.

Planta parva, foliis angustissime semiteretibus, sepalis late ovatis obtusis brevicaudatis, petalis acutis margine superiore obtusangulis margine inferiore apiculatis, lamina labelli supra medium acute reflexa, columna pedeque gracilibus elongatis.

Plant small, epiphytic, densely caespitose; roots slender but proportionately thick. Ramicauls erect, 8-10 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, narrowly linear, semiterete, acute, 3-4 cm long, 2 mm wide, 2 mm thick, the base epetiolate. **Inflorescence** a congested, successively few-

flowered raceme borne by a peduncle 2-4 mm long, enclosed by a sheath, from near the middle of the ramicaul; floral bracts thin, imbricating, 5 mm long; pedicel 10-11 mm long; ovary 1-1.5 mm long, subverrucose; **sepals** translucent yellow, diffusely spotted with purple, the dorsal sepal broadly ovate to suborbicular, 6 mm long, 4 mm wide, the apex obtuse, shortly acuminate into a tail 1.5 mm long, connate to the lateral sepals for 0.5 mm to form a sepaline cup, the lateral sepals broadly ovate, oblique, 4.5 mm long, 2.75 mm wide, the apex obtuse, shortly acuminate into a tail 1.5 mm long, with a transverse callus above the deflexed base; **petals** translucent with a few purple spots, obliquely subsagittate, 2 mm long, 1.25 mm wide at the base, the apex acute with an obtuse angle on the upper margin and an acute apiculum on the labellar margin; **lip** dull yellow, spotted and suffused with purple, long-unguiculate, the blade suborbicular, 2.5 mm long, 2.5 mm wide, acutely deflexed near the middle,the apex rounded, minutely denticulate, the base above the claw with a pair of short, retrorse angles, the disc shallowly sulcate, the claw slender, 1.5 mm long, bilobulate at the base, hinged to the apex of the column-foot; **column** greenish white, lightly spotted with rose, slender, 2.5 mm long, winged above the middle, the foot slender, 3 mm long.

COLOMBIA: **Cauca:** Enana, Popayán, collected by R. Escobar, cultivated by M. & O. Robledo at La Ceja, 5 Oct. 1977, *R. Escobar 1396* (Holotype: SEL), C. Luer illustr. 1920.

This small species is known only from the collection made by Rodrigo Escobar near Popayán in southern Colombia, and cultivated by Dr. and Sra. Robledo at La Ceja. The species is identified by the very narrowly semiterete leaves, and broadly ovate, obtuse sepals with tails about one millimeter long. Most distinctive are the oblique, narrowly acute petals, obtusely angled on the upper margin, and with a short, acute apiculum on the labellar margin. Also unusual in the genus is the long, narrow column and even longer column-foot.

Dryadella verrucosa Luer & Escobar, sp. nov.

Ety.: From the Latin *verrucosus*, "verrucose," referring to the blade of the lip.

Species haec *D. simulae* (Rchb.f.) Luer similis, sed sepalis late ovatis dense pusticulatis ecaudatis et labelli lamina dense verrucosa differt.

Plant medium in size, epiphytic, densely caespitose; roots coarse. Ramicauls erect, 10-15 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical-obovate, pusticulate on the dorsal surface, subacute, 3-6 cm long, 4-5 mm wide, gradually narrowed below to the subpetiolate base. **Inflorescence** a congested, successively few-flowered raceme borne by a peduncle 4-5 mm long, enclosed by a sheath, from low on the ramicaul; floral bracts thin, imbricating, 6 mm long; pedicel 6-7 mm long; ovary 1 mm long, minutely verrucose; **sepals** cream-colored, spotted with purple-brown, thick, the dorsal sepal broadly ovate, concave, obtuse, 6.5 mm long, 5 mm wide, connate to the lateral sepals for 0.5 mm to form a sepaline cup, the lateral sepals broadly ovate, oblique, 5 mm long, 4 mm wide, the apex obtuse, shortly acuminate, connate 0.5 mm at the base, with a transverse callus above the deflexed base; **petals** translucent brown, subquadrate, sagittate, 2.5 mm long, 2.5 mm wide, the apex obtuse, obtusely angled on both upper margin below the apex, with a ligulate lobule on the labellar margin; **lip** brown, long-unguiculate, rigid, the blade elliptical, diffusely verrucose with denticulate margins, acutely deflexed near the middle, 3.25 mm long, 2.5 mm wide, the base above the claw with a pair of short, obtuse lobules directed posteriorly, the disc with a low rounded pair of diverging calli below the middle, the claw 1.5 mm long, lightly channeled, bilobulate at the base, hinged to the apex of the column-foot; **column** green, 3 mm long, longitudinally winged above the middle, the foot thick, equally long.

COLOMBIA: **Antioquia:** Munic. of Cocorná, epiphytic in cloud forest near Río Cocorná, alt. 2000 m, 2 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10091* (Holotype: MO).

This distinctive species is known only from the original collection made in the Central Cordillera of Colombia. Although related to the variable and widely distributed *D. simula*, this species is recognized by the pusticulate leaves and sepals. The sepals are broadly ovate, obtuse, and shortly acuminate but tailless. The petals of the two species are somewhat similar. The blade of the lip of *D. verrucosa*, however, is diffusely and markedly verrucose.

Lepanthes cloesii Luer, sp. nov.

Ety.: Named for Patrick Cloes of Hasselt, Belgium, who collected this species.

Species haec *L. nautilus* Luer & Escobar similis, sed petalorum lobis elongatis negris et appendice anguste elongata differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4-6.5 cm long, enclosed by 6-8 long-ciliate, lepanthiform sheaths. **Leaf** erect, suffused with purple beneath, broadly elliptical, obtuse to rounded at the apex, 3-5 cm long, 1.5-2 cm wide, the base broadly cuneate into a petiole 0.5 mm long. **Inflorescence** a distantly and successively several-flowered raceme, up to 10 cm long, borne far beyond the leaf by a slender peduncle 8-9 cm long; floral bracts 1.5 mm long; pedicels 5-7 mm long; ovary carinate, 2 mm long; **sepals** dull white, suffused with purple-brown below the margins, glabrous, carinate, the dorsal sepal concave, triangular, acute, acuminate, 20 mm long, 11 mm wide expanded, 3-veined, connate to the lateral sepals for 5 mm, the lateral sepals obliquely triangular, acute, attenuate, 21 mm long, 6 mm wide, 2-veined, connate 8 mm in a concave lamina; **petals** transversely bilobed, black, densely cellular-glandular, 1 mm long, 8 mm wide, the lobes oblong, obtuse, with revolute margins, the upper lobe 6.5 mm long, curved forward, much longer than the lower lobe; **lip** purple-black, bilaminate, the blades pubescent, convex, oblong with rounded ends, 2 mm long, covering the end of the column, the connectives short, cuneate, from near the base, the body connate to the shaft of the column near the middle, the appendix narrowly elongate, in contact with a forked process within the stigmatic cavity; **column** stout, 1.5 mm long, the anther dorsal, the stigma ventral.

PERU: **Huánuco**: Carpish Mountains, alt. 2800 m, 1997, flowered in cultivation in Hasselt, Belgium, by *P. Cloes 980-929* (Holotype: MO), C. Luer illustr. 19060.

This Peruvian species of series *Elongatae* subsection *Lepanthes* is similar to the Colombian *L. nautilus*. Both species are characterized by broadly elliptical, obtuse leaves far surpassed by a loose raceme of large, concave flowers with acuminate, tail-like apices of the sepals. The upper lobes of the black petals of *L. cloesii* are elongate, narrow and curved forward to protrude from the sepaline cavity. The blades of the lip are pubescent, oblong and convex. They cover the column above the middle because the short connectives are connate to the column near the middle. The slender appendix is in contact with a forked process within the stigmatic cavity.

Lepanthes confusoides Luer, sp. nov.

Ety.: Named for the similarity of the flower to *L. confusa* Ames & C.Schweinf.

Planta parva, inflorescentia disticha congestissima folio elliptico reticulato plus minusve excedenti, floribus illis *L. confusae* Ames & C.Schweinf. simmils, sed corpore angustiore cum appendice setaformi differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-4 cm long, enclosed by 3-6 microscopically scabrous, dark brown, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, subacute, reticulated, 20-25 mm long, 10-14 mm wide, the base broadly cuneate into a petiole 1-2 mm long. **Inflorescence** a distichous, congested, successively many-flowered raceme, up to 15 mm long, borne by a filiform peduncle 18-25 mm long, along the back of the leaf; floral bracts 1-1.5 mm long; pedicel 2-2.5 mm long; ovary 1 mm long; **sepals** yellow, glabrous, carinate, the dorsal sepal triangular, subacute, 2.75 mm long, 2.1 mm wide, connate to the lateral sepals for 1 mm, the lateral sepals oblong, oblique, obtuse, 2.9 mm long, 1.4 mm wide, connate 1.2 mm; **petals** orange with red at the base, ciliate and minutely pubescent, transversely bilobed, 0.8 mm long, 3.4 mm wide, 3-veined, the upper lobe narrowly triangular, obtuse, the lower lobe smaller, narrowly triangular, oblique; **lip** orange, ciliate and microscopically pubescent, bilaminate, the blades oblong, surrounding the column, 1 mm long, the apices and bases obtuse, the connectives cuneate, the body narrow, connate to the base of the column, the sinus narrow with the appendix minute, setiform; **column** 0.9 mm long, the anther and the stigma apical.

PANAMA: **Bocas del Toro**, forest at alt. 900 m, collected by E. Olmos, cultivated at Finca Dracula, Cerro Punta, 15 Nov. 1998, *C. Luer 18975* (Holotype: MO).

The flower of this species, apparently endemic in western Panama, resembles that of *L. confusa*, which is known from Costa Rica to Ecuador. The flower differs in glabrous sepals and a narrow body of the lip with a setiform appendix. Vegetatively, however, differences are marked. *Lepanthes confusoides* is distinguished by the long peduncle that bears the very congested raceme near or beyond the apex of a reticulated leaf.

Lepanthes dactylina Luer, sp. nov.

Ety.: From the Greek *dactylinus*, "finger-bearing" referring to the stigmatic process.

Planta mediocris, ramicaulorum vaginis dilatatis, folio sulcato reticulato quam inflorescentia longiore, sepalis acutis minute ciliatis, petalis transverse bilobis, labellorum laminis planis laevibus, appendice triangulari processo digitiformi stigmatico contingenti distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls suberect, 2-8.5 cm long, enclosed by 6-13 lepanthiform sheaths with dilated, ciliate ostia. **Leaf** suberect to spreading, coriaceous, elliptical, slightly acuminate, acute, reticulated, convex, sulcate centrally, 3-5 cm long, 1.3-1.7 cm wide, the base cuneate into a petiole 2 mm long. **Inflorescence** a congested, successively many-flowered raceme, up to 30 mm long, borne along the sulcus on the dorsum of the leaf by a filiform peduncle 6-7 mm long; floral bracts 1 mm long; pedicel 1.5 mm long; ovary 3 mm long; **sepals** yellow-green or purple, carinate, minutely ciliate, the dorsal sepal ovate-triangular, acute, 3.5 mm long, 1.5 mm wide, 3-veined, connate to the lateral sepals for 0.75 mm, the lateral sepals ovate, oblique, subacute, acuminate, 3.5 mm long, 1.75 mm wide, 2-veined, connate 0.75 mm; **petals** yellow with purple margins or yellow, suffused with brown, glabrous, transversely bilobed, 0.75 mm long, 3 mm wide, the upper lobe oblong, obtuse to subtruncate, 1.75 mm long, 1 mm wide, the lower lobe oblong, oblique, rounded at the apex, 1.25 mm long, 0.6 mm wide; **lip** shiny brown, glabrous, bilaminate, 1.75 mm long, with the lobes oblong, obtuse, the connectives cuneate, with the body connate to the base of the column, the sinus obtuse with a triangular, ciliate appendix in contact with a process from the stigma; **column** 2 mm long, the anther dorsal, the stigma ventral with a finger-like process.

PERU: **Amazonas**, collected by Cordelia Head, cultivated at J & L Orchids, Easton, CT, 19 June 1998, *C. Luer 18817* (Holotype: MO); same collection, 31 May 1997, *C. Luer 18511* (MO).

This species from northern Peru is characterized by ramicauls with the sheaths widely dilated at the apices; an ovate, reticulated leaf; and a successively flowered raceme borne on top along the sulcus. The sepals are acute and minutely ciliate; the petals are transversely bilobed; and the blades of the lip are oblong, flat and shiny. The appendix is in contact with a finger-like process from the stigma which is positioned above. A similar stigmatic process is seen apparently randomly in other species, *e.g. L. contingens*.

Lepanthes empticia Luer & Béhar, sp. nov.

Ety.: From the Latin *empticius*, "bought," referring to the manner of acquisition.

Planta mediocris debilis, ramicauli gracillimo folio ovato acuto tenuissimo longiore, racemo abbreviato floribus minutissimis, sepalis integris, petalis transverse bilobis glabris, laminis labelli oblongis glabris et appendice grandi cardinata ovata concava ciliata.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls very slender, suberect, 6-8 cm long, enclosed by 7-8 closely fitting, microscopically scabrous, lepanthiform sheaths with oblique ostia. **Leaf** spreading, thinly coriaceous, ovate, acute, acuminate, 3.5-4 cm long, 1.4-1.5 cm wide, the base cuneate into a subsessile base. **Inflorescence** a congested, few-flowered raceme, borne on top of the leaf by a filiform peduncle 6-7 mm long; floral bracts 0.5 mm long; pedicels 0.5 mm long; ovary 0.8 mm long; **sepals** yellow, glabrous, the dorsal sepal ovate, subacute, 1.8 mm long, 1 mm wide, connate to the lateral sepals for 0.25 mm, the lateral sepals ovate, obtuse, oblique, 1.3 mm long, 0.8 mm wide, connate 0.6 mm; **petals** yellow, suffused with red toward ends, glabrous, transversely bilobed, 0.5 mm long, 1.6 mm wide, 1-veined, the lobes triangular, obtuse, subequal; **lip** red, bilaminate, the blades glabrous, oblong, 0.8 mm long, the ends rounded, the connectives oblong. below the middle, the body broad, connate to the base of the column, the appendix large, ovate, concave, ciliate, 0.5 mm long, hinged below the sinus; **column** stout, clavate, 0.8 mm long, the anther apical, the stigma ventral.

COSTA RICA: Without collection data, purchased from a collector in Costa Rica by M. Béhar, cultivated in Guatemala, Sept. 1995, *M. Béhar 135* (Holotype: MO), C. Luer illustr. 17753.

This species is without collection data, but its origin is without doubt Costa Rica. It is distinguished by the weak habit with extremely thin ramicauls and a thinly coriaceous, ovate leaf. The abbreviated raceme is borne on top of the leaf. The flowers are among the smallest of the genus, the sepals being less than two millimeters long. The sepals, transverse petals and lip are glabrous. The blades of the lip are oblong, less than one millimeter long, and the ovate, ciliate, external appendix is proportionately large.

Lepanthes glossites Luer, sp. nov.

Ety.: From the Latin *glossa*, "tongue" referring to the close alliance of *L. ligulata*.

Species haec *L. ligulatae* Luer & Hirtz affinis, sed habitu floribusque majoribus, vaginis longissimis, racemo laxifloro, sepalis non-acuminatis, et columna proportione minore differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-8 cm long, enclosed by 5-6 long, tightly fitting, microscopically ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, 5 cm long, 1 cm wide, the base cuneate into a petiole 5 mm long. **Inflorescence** a lax, successively several-flowered raceme, up to 4 cm or more long, borne by a filiform peduncle 9-20 mm long, in front of the leaf; floral bracts 1.5-2 mm long; pedicel 1.5 mm long; ovary 1.5 mm long; **sepals** light yellow, carinate, the dorsal sepal narrowly ovate, acute, 5 mm long, 2 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals ovate, oblique, acute, 4.5 mm long, 2 mm wide, 2-veined, connate 1 mm; **petals** dark purple, cellular-glabrous, transversely bilobed, 1.25 mm long, 3 mm wide, 1-veined, the upper lobe oblong, subtruncate, the lower lobe slightly smaller, oblong-triangular, rounded at the apex; **lip** dark purple, microscopically pubescent, bilaminate, 1.5 mm long, with the lobes oblong, obtuse, the connectives from the base, narrowly oblong, with the body narrow, connate to the base of the column, the sinus obtuse with a deflexed, narrowly triangular, minutely ciliate appendix; **column** 1.75 mm long, the anther dorsal, the stigma ventral.

PERU: **Amazonas**, Mirador, collected by Cordelia Head, Oct. 1995, cultivated at J & L Orchids, Easton, CT, 31 May 1997, *C. Luer 18507* (Holotype: MO).

This species, discovered in the northern Peruvian department of Amazonas, is closely related to *L. ligulata* of central Bolivia. *Lepanthes glossites* differs in the much longer ramicaul with a few, long sheaths, and a larger, narrowly elliptical leaf. The raceme is laxly flowered instead of congested, and the sepals are merely acute, not acuminate. The lip and column are very similar except that the gynostemium of *L. ligulata* is proportionally larger and arcuate, protruding beyond the blades of the lip.

Lepanthes hamiltonii Luer, sp. nov.

Ety.: Named in honor of A.C. Hamilton, who with P.M. Holligan, collected this species.

Planta mediocris, folio ovato ramicaulibus cum vaginis fuscatis dense ciliatis breviore, racemo congesto brevi, sepalis anguste acuminatis, petalorum lobis quadratis, labello suborbiculato in lobos lunatos inciso cum appendice minuta distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-8 cm long, enclosed by 7-9 dark, coarsely ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, ovate, subacute, 14-24 mm long, 8-13 mm wide, the rounded base contracted into a petiole 2-3 mm long. **Inflorescence** a congested, successively several-flowered raceme, up to 5 mm or more long, borne by a filiform peduncle ca. 4 mm long, behind the leaf; floral bracts dark, 1.5 mm long; pedicel 0.5 mm long; ovary 0.5 mm long; **sepals** described as bight to dull red, subcarinate, glabrous, the dorsal sepal elliptical, acute, acuminate, 6 mm long, 2.25 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals narrowly ovate-triangular, oblique, acute, attenuate, 6 mm long, 1.75 mm wide, 1-veined, connate 1 mm; **petals** glabrous, transversely bilobed, 0.5 mm long, 1.75 mm wide, 1-veined, the lobes subequal, subquadrate, truncate; **lip** suborbicular, 1.75 mm long, 1.75 mm wide expanded, incised anteriorly into lunate lobes with the obtuse apices and bases, the margins thickened toward the base in an attempt to form a lamina, the body broad, connate to the base of the lip, the sinus obtuse with a minute, rounded appendix; **column** 1.75 mm long, the anther dorsal, the stigma ventral.

PERU: **San Martin**: Huallaga, valley of Río Apisoncho, alt. 3600 m, 12 Aug. 1965, *A.C. Hamilton & P.M. Holligan 1260* (Holotype: MO), C. Luer illustr. 16401.

This species, apparently endemic in central Peru, is characterized by a small, ovate leaf that is conspicuously shorter than the dark, densely ciliate-sheathed ramicaul that bears it. The flowers are borne in a short raceme behind the leaf. The sepals are acuminate; the lobes of the petals are subquadrate and about equal in size; and the lip is circular and incised anteriorly into two lunate lobes.

Lepanthes laevis Luer, sp. nov.

Ety.: From the Latin *laevis*, "smooth" referring to the sepals, petals and blades of the lip.

Species haec *L. fimbriatae* Ames & C.Schweinf. affinis, sed petalis et laminis labellorum laevibus, et laminis supra columnam adhaerentibus differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-7 cm long, enclosed by 5-6 tightly fitting, microscopically scabrous, lepanthiform sheaths. **Leaf** suberect, coriaceous, elliptical, slightly concave, acute or narrowly obtuse, 4.5-5 cm long, 2-2.2 mm wide, the base cuneate into a subpetiolate base. **Inflorescence** a congested, successively many-flowered raceme, up to 15 mm long, borne by a filiform peduncle 10-20 mm long, on top of the leaf; floral bracts 2 mm long; pedicel 2-2.5 mm long; ovary 3 mm long; **sepals** yellow, carinate, the dorsal sepal broadly elliptical to suborbicular, obtuse, 3.5 mm long, 2.75 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals ovate, oblique, subacute, 3 mm long, 1.5 mm wide, 2-veined, connate 1 mm; **petals** pale orange, glabrous, transversely bilobed, 1 mm long, 4.5 mm wide, 3-veined, the upper lobe broadly oblong, obtuse to subtruncate, 2.5 mm long, 2.75 mm wide, the lower lobe oblong-triangular, rounded at the apex, 2 mm long, 1 mm wide; **lip** rosy orange, glabrous, bilaminate, 2 mm long, with the lobes obovate, obtuse, adherent medially covering the column entirely, the connectives broadly and shortly cuneate-oblong, with the body broad, connate to the base of the column, the sinus obtuse with an oblong, ciliate, concave appendix with a concave, bilobulate distal segment; **column** 2 mm long, the anther dorsal, the stigma ventral.

PANAMA: **Chiriquí**, obtained from Andres Maduro, cultivated at J & L Orchids, Easton, CT, 19 June 1998, *C. Luer 18823* (Holotype: MO).

This species, known only from westernmost Panama, is closely related to *L. fimbriata* which is found from Mexico to Panama. Vegetatively and florally they are similar, but the petals and blades of the lip are smooth and totally glabrous. In addition, the blades of the lip are adherent over the entire length of the column. The connectives, body and appendix are similar.

Lepanthes ridicula Luer, sp. nov.

Ety.: From the Latin *ridiculus*, "absurd," referring to the unusual morphology of the floral parts.

Planta mediocris, racemo folio ovato leviter concavo breviore, sepalis denticulatis recurvis, petalis oblongis erectis lobo inferiore subnullo, labello columnam amplectenti apice breviter lobato cum appendice minuto orbiculato distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-8 cm long, enclosed by 13-15 light brown, minutely ciliate, lepanthiform sheaths with dilated orifices. **Leaf** erect, coriaceous, elliptical, slightly concave, acute, acuminate, 25-43 mm long, 1.5-1.8 mm wide, the base cuneate into a petiole 1.5 mm long. **Inflorescence** a congested, successively few-flowered raceme, up to 5 mm long, borne by a filiform peduncle 10-30 mm long, along the dorsum of the leaf; floral bracts 1.5 mm long; pedicel 1.5 mm long; ovary 1.5 mm long; **sepals** dark orange, carinate, denticulate, the dorsal sepal ovate-triangular, subacute, 2.5 mm long, 1.5 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, with the margins revolute a short distance above the base, the lateral sepals triangular, oblique, acute, reflexed below the middle, 2.25 mm long, 1.5 mm wide, 2-veined, connate 0.25 mm; **petals** dark orange, purple at the base, glabrous, the upper lobe oblong, obtuse, erect, 1.5 mm long, 0.5 mm wide, the lower lobe reduced to 0.1 mm; **lip** orange, glabrous, widely bilobed, 1.5 mm long, with the lobes broad, incurved, surrounding the column, the apices free, 0.25 mm long, with a small, spherical appendix in the sinus, the base connate to the base of the column; **column** 1 mm long, anther dorsal, stigma ventral.

PANAMA: **Chiriquí**, obtained from Andres Maduro, cultivated at J & L Orchids, Easton, CT, 19 June 1998, *C. Luer 18827* (Holotype: MO).

Vegetatively, this species does not seem unusual, but each of the floral parts is unusual. The dorsal sepal is reflexed with the denticulate margins recurved a short distance above the broad base. The lateral sepals are triangular, denticulate and convex below the middle, and recurved above the middle whereupon they become slightly concave. The oblong petals stand erect with the lower lobe reduced to a tiny nubbin. The lip is similar to that of some species of subgenus *Brachycladium* with broadly expanded lateral lobes surrounding the column. Anteriorly, the lip is shallowly divided into a pair of incurved, overlapping apices with a minute, rounded appendix between.

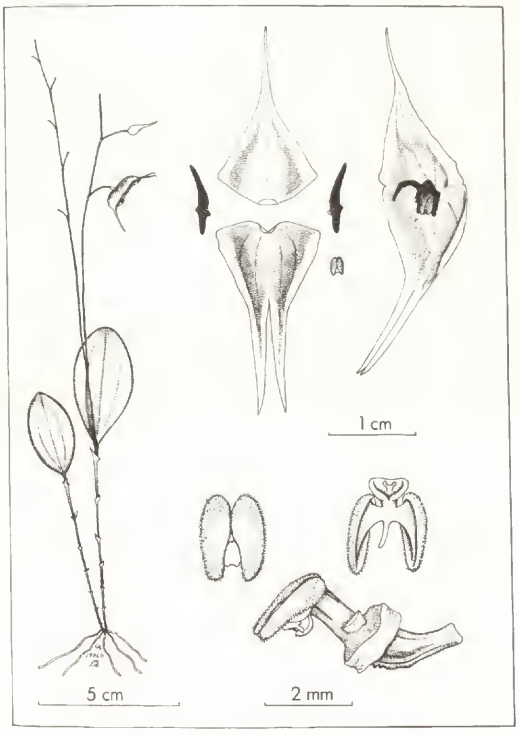


Fig. 14a. Lepanthes cloesii

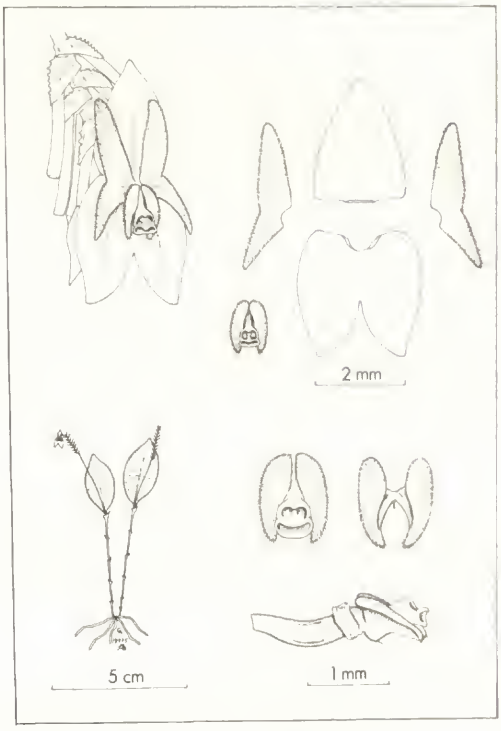


Fig. 15a. Lepanthes confusoides

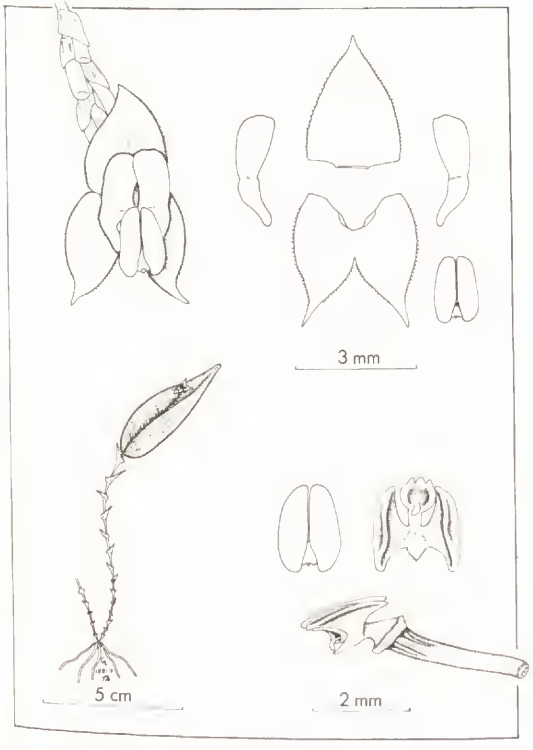


Fig. 16a. Lepanthes dactylina

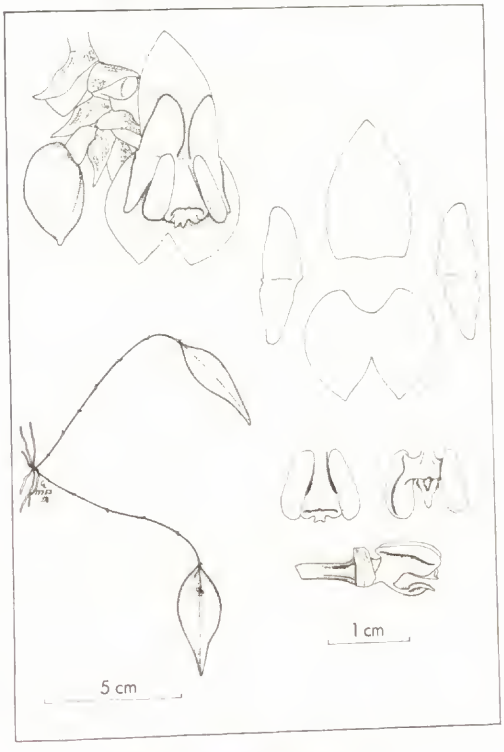


Fig. 17a. Lepanthes empticia

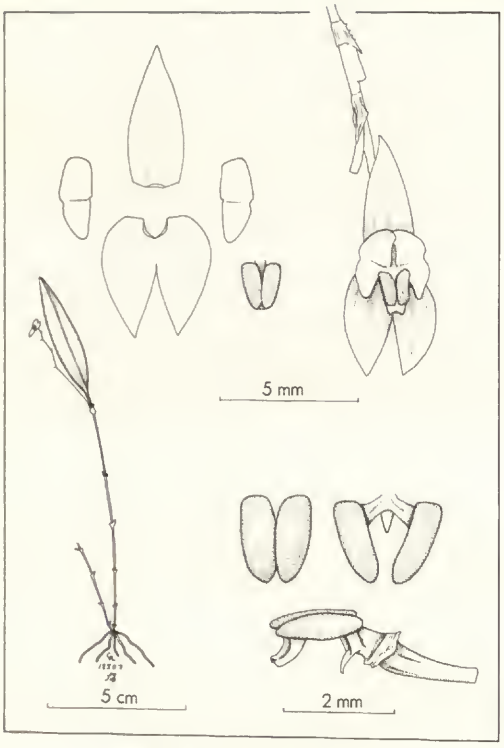


Fig. 18a. Lepanthes glossites

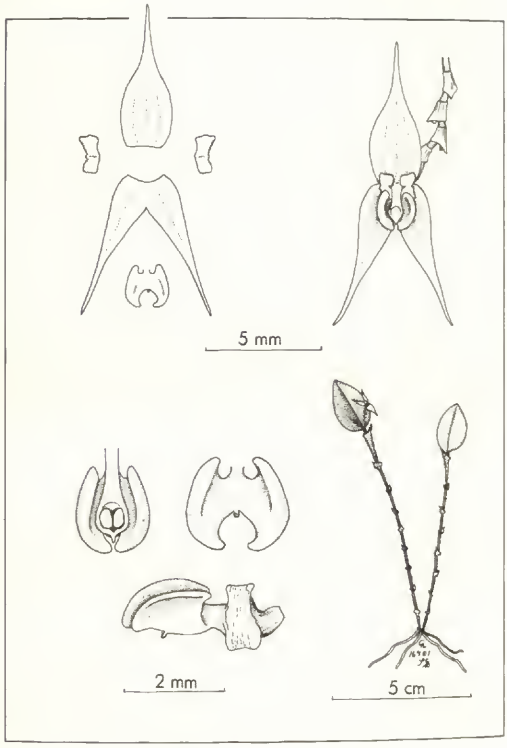


Fig. 19a. Lepanthes hamiltonii

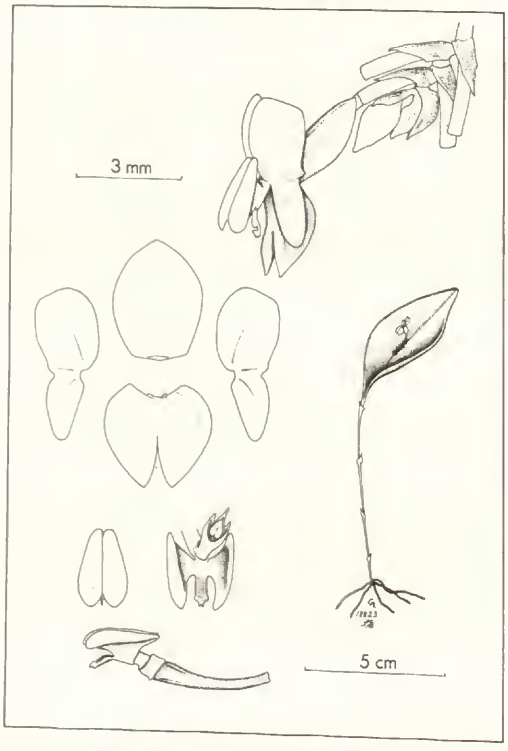


Fig. 20a. Lepanthes laevis

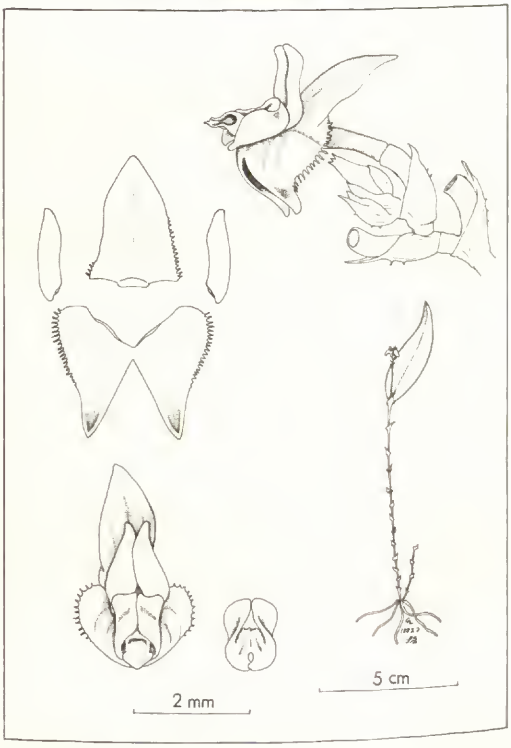


Fig. 21a. Lepanthes ridicula

Pleurothallis brighamella Luer, sp. nov.

Ety.: Named for the resemblance to *Pleurothallis brighamii* S.Watson.

Species haec *P. brigmamii* S.Watson persimilis, sed habitu multiminoribus, floribus rubromaculatis minoribus et columnae pede ecalloso differt.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-3 mm long, enclosed by 2 thin, tubular sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, 14-18 mm long including a petiole 1-2 mm long, 4-4.5 mm wide, cuneate below into the petiole. **Inflorescence** a congested fascicle of single, successive flowers, borne by a slender, erect peduncle 20-25 mm long; pedicels 3-4 mm long; floral bracts thin, tubular, imbricating, acuminate, 2.5-3 mm long; ovary 1-1.5 mm long; **sepals** membranous, light tan, flecked with red along the veins, subcarinate, glabrous, the dorsal sepal oblong, acute, 5 mm long, 2 mm wide, 3-veined, the lateral sepals connate above the middle into an ovate, bifid lamina, 5 mm long, 3.25 mm wide, 6-veined, the apices acute; **petals** translucent, mottled and edged in purple, obovate-spathulate, oblique, 2.5 mm long, 1 mm wide, the apex subacute, 2-veined, with the labellar margin dilated; **lip** orange-brown, fleshy, oblong, 2.5 mm long, 1.3 mm wide, the apex rounded, microscopically erose, with an obtuse marginal angle between the middle and basal thirds, the disc with a pair of minutely verrucose calli above the middle, shallowly channeled between, the base truncate with a minute lobule at each corner, hinged to the column-foot; **column** yellow, suffused with purple, stout, 2.3 mm long, longitudinally winged, bidentate at the apex, the foot 1 mm long without calli, the anther and stigma ventral.

PANAMA: Without collection data, cultivated by Maduro's Tropical Flowers at Cerro Punta, 18 Nov. 1998, *C. Luer 19005* (Holotype: MO).

This is very closely related to the frequent and widely distributed *P. brighamii*. It is distinguished from the latter by the minute habit; smaller, red-flecked sepals; and a column devoid of calli.

Pleurothallis coronula Luer, sp. nov.

Ety.: From the Latin *coronula*, "a little crown," referring to the fringed cavity at the base of the lip.

Planta parva caespitosa, racemo paucifloro congestissimo, pedunculo foliis petiolatis duplolongiore, sepalis carinatis denticulatis breviter acuminatis lateralibus supra medium connatis, petalis oblongis obliquis obtusis, labello oblongo eroso, disco bicarinato carinis supra basim in cavitatem convenientibus, et columna bialata cum pede biclavellata distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-9 mm long, enclosed by 2 thin, tubular sheaths. **Leaf** erect, narrowly elliptical, acute, 15-20 mm long including the petiole 5-8 mm long, 3-4.5 mm wide, gradually narrowed below into the petiolate base. **Inflorescence** a congested, successively flowered fascicle; peduncle 2.5-5 cm long, borne laterally from the ramicaul; floral bracts thin, tubular, imbricating, 2.5-3 mm long; pedicels 5 mm long; ovary lightly papillose, 1.25 mm long; **sepals** translucent light green, suffused with rose centrally, membranous, minutely denticulate with denticulate carinate, the dorsal sepal oblong, subacute, concave, shortly acuminate, 7 mm long, 4 mm wide, 3-veined, the lateral sepals connate to above the middle into an ovate, bifid lamina with acute, acuminate apices, 7 mm long, 5 mm wide, 4-veined; **petals** translucent rose, obliquely oblong, shortly unguiculate, obliquely obtuse at the apex, 3 mm long, 1.75 mm wide, 1-veined, with the margins minutely erose; **lip** rosy brown, elliptical-oblong, 3.75 mm long, 1.5 mm wide, with the margins thin and serrate, rounded at the apex, the disc with a longitudinal pair of subparallel calli nearly the length of the lip, at the base the calli join to form a fringed cup-like cavity, the apex with a central, serrated callus, the base hinged to the column-foot; **column** 2 mm long, with broad, round wings, the foot 2 mm long, with a prominent pair of pedunculated calli near the middle, the anther subapical and stigma ventral.

COLOMBIA: **Nariño**: without exact locality, collected by José Luis Aguirre, cultivated by J & L Orchids at Easton, CT, 19 June 1998, *C. Luer 18824* (Holotype: MO).

This little species is apparently endemic in southern Colombia. The flower is borne successively in a fascicle by a slender peduncle twice or more longer than the leaves. The shortly acuminate sepals are minutely carinate-denticulate. The petals are obliquely obtuse with minutely erose margins. The lip is elliptical with thin, serrate margins. A longitudinal pair of carinae join above the base to form a fringed crown-like cavity. A large, pedunculated callus is present on either side of the column-foot.

Pleurothallis displosa Luer, sp. nov.

Ety.: From the Greek *displosus*, "spread out," referring to the elongate raceme.

Species haec *P. corniculatae* (Sw.) Lindl. affinis, sed racemo elongato multifloro, pedicellis brevioribus et petalis angustioribus acutisque differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4-6 mm long, enclosed by 2 thin, tubular sheaths. **Leaf** erect, narrowly elliptical, acute, 4-6 cm long including an indistinct petiole 1-1.5 cm long, 0.8-1.2 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a subcongested to lax, disheveled, progressively flowered raceme up to 12 cm long including the capillary peduncle 4-6 cm long, borne laterally from the ramicaul; floral bracts thin, tubular, 2-3 mm long, fugacious below; pedicels 4-5 mm long; ovary 2 mm long; **sepals** membranous, glabrous, low-carinate, yellow with orange veins, the dorsal sepal obovate, subacute, concave, 6 mm long, 2 mm wide, 3-veined, the lateral sepals connate to above the middle into an oblong-ovate, bifid lamina with acute apices, 6 mm long, 2.75 mm wide, 6-veined; **petals** translucent light yellow with orange veins, obovate, oblique, acute, dilated on the labellar margin, 2.75 mm long, 1 mm wide, 2-veined; **lip** bright orange, fleshy, oblong, 2.75 mm long, 0.66 mm wide, with low, broadly obtuse, marginal angles between the mid and basal thirds, the apex rounded with the margins cellular, the disc shallowly sulcate between a pair of low, parallel calli nearly the length of the lip, glandular-cellular, the base truncate, hinged to the column-foot; **column** yellow, 2 mm long, longitudinally winged, dentate at the apex, the foot ca. 1 mm long, the anther and stigma ventral.

PANAMA: **Coclé**: El Valle del Antón, alt. ca. 1000 m, collected by George Kennedy, flowered in cultivation, 20 Oct. 1981, *C. Luer 6533* (Holotype: SEL).

This species, known only from a Panamanian collection by Dr. George Kennedy, is closely related to the common and widely distributed *P. corniculata*. The habit of the two species is similar: a tuft of elliptical, shortly petiolate leaves. Instead of producing but one long-pedicellate flower (occasionally followed by a second) as with *P. corniculata*, the inflorescence reaches 12 centimeters or more in length, about half the length consisting of an elongating, disheveled, successively many-flowered raceme. The pedicels are four to five millimeters long, less than half the length of the pedicels of *P. corniculata*. The flowers are similar, but the petals of *P. displosa* are narrower and acute.

Pleurothallis endresii Luer, sp. nov.

Ety.: Named in honor of A.R. Andres, nineteenth century collector and illustrator of Costarican orchids.

Inter species sect. *Muscosae*, subgen. *Speckliniae* species longirepens foliis ellipticis racemo pauciflore longiore, sepalis acutis liberis sparse ciliatis, petalis oblongis ad apicem serrulatis, et labello anguste ovato carinato marginibus denticulatis basi bilobulato distinguitur.

Plant small, epiphytic, long-repent, up to 10 cm long, the rhizome stout, 4-5 mm long between ramicauls, enclosed by 2 tubular sheaths; roots produced along the rhizome. Ramicauls suberect, 3 mm long, enclosed by a tubular sheath. **Leaf** erect, coriaceous, elliptical to narrowly obovate, 15-22 mm long, 4-5 mm wide, subacute to obtuse at the apex, narrowly cuneate below into an indistinct petiole ca. 3 mm long. **Inflorescence** a successive, 3- to 4-flowered raceme, ca. 5 mm long including the peduncle 2 mm long, borne laterally from the ramicaul; floral bract infundibular, 1 mm long; pedicel 1 mm long; ovary 1 mm long; **sepals** appear to have been purple, minutely ciliate, thickened above the middle, the dorsal sepal narrowly ovate, acute, 5.5 mm long, 1.5 mm wide, 3-veined, the lateral sepals connate 1 mm at the base, narrowly oblong-ovate, acute, 6 mm long, 1.25 mm wide, 3-veined; **petals** oblong, 2 mm long, 0.75 mm wide, 1-veined, serrate at the subacute apex; **lip** narrowly ovate, narrowly rounded at the apex, 3 mm long, 0.5 mm wide, the margins ciliate-denticulate, the disc longitudinally carinate on lower half, the carina bifurcated above the base, the base membraneously bilobulate, hinged to the column-foot; **column** semiterete, 2 mm long, long-denticulate at the apex, the anther, rostellum and stigma hooded and ventral, the foot concave.

COSTA RICA: **Cartago**: Pizirres, along road to San Cristobal, ca. 1867, *A. Endres 555* (Holotype: W), C. Luer illustr. 18576.

This small species, collected by Endres in the nineteenth century and identified by someone other than Reichenbach as *P. sertularioides* (Sw.) Spreng., was found

in Reichenbach's herbarium at W. Neither description nor illustration by Endres has been seen. I know of no recent collection.

Pleurothallis endresii is distinguished by a repent habit, erect elliptical leaves borne by much shorter ramicauls from which a short, successively few-flowered raceme arises, as seen in *P. polygonoides* Griseb. The dorsal sepal is free, but the laterals are connate basally. The sepals are narrow and ciliate; the petals are oblong and serrate toward the apex; and the narrowly ovate lip is denticulate with a bifurcated callus below the middle, and bilobulate at the base.

Pleurothallis fustifera Luer, sp. nov.

Ety.: From the Latin *fustifer*, "club-bearing," referring to the labellum.

Planta parva, folio petiolato ramicauli subaequilongo, flore solitario fasciculato, pedunculo petioloque brevibus, sepalo dorsali synsepaloque liberis, petalis longi-acuminatis, et labello trilobato, lobis basalibus clavellatis distinguitur.

Plant small for the subgenus, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 1.5-3 cm long, with a tubular sheath below the middle and 1-2 shorter sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical, subacute to obtuse, petiolate, 3-5.5 cm long, 1.5-1.8 cm wide, cuneate below into the petiole 7-8 mm long. **Inflorescence** a succession of solitary flowers, borne from an erect spathe 5-10 mm long, at the apex of the ramicaul; peduncle ca. 1 mm long within the spathe; pedicel erect, 5-9 mm long; floral bracts thin, tubular, 5-6 mm long; ovary 3-4 mm long; **sepals** membranous, glabrous, the dorsal sepal free, narrowly ovate, acute, 17 mm long, 4 mm wide, 3-veined, the lateral sepals connate into an ovate, acute, acuminate, concave synsepal, 17 mm long, 6 mm wide, 6-veined; **petals** translucent, ovate in the basal fourth, minutely denticulate, with the apex acute, long-acuminate, 15 mm long, 2.5 mm wide, 3-veined; **lip** trilobed, 8 mm long, 3 mm wide, the midlobe elliptical, subacute to obtuse, convex, entire, the basal lobes on the basal fourth, antrorse, clavate-pedunculate, broadly rounded at the apex, the base subtruncate, hinged to the base of the column-foot; **column** conical-semiterete, 2 mm long, the anther, rostellum and stigma ventral, the foot short, thick, pedestal-like with the apex of the ovary.

PERU: **San Martin**: south of Moyabamba, along Río Yanayacu, a tributary of Río Mayo, alt. 2,600 ft., *K. Tokach P-48* (Holotype: MO), C. Luer illustr. 18094.

Among the members of subgenus *Restrepioidia*, this species is distinguished by the small habit, pedicellate leaves, and single flowers produced successively in a fascicle with a small spathe. The flowers are comparatively large with the dorsal sepal free from the synsepal. The apices of the petals are long-acuminate. The basal lobes of the lip are proportionately large, antrorse and clavate.

Pleurothallis garciae Luer, sp. nov.

Ety.: Named for Carlos García E. of Caracas, Venezuela, who collected this species.

Species haec *P. yauaperyensis* Barb.Rodr. affinis, sed foliis cordatis latioribusque, floribus majoribus, sepalo dorsali spathulato et synsepalo supra medium convexo pubescenti differt.

Plant medium in size, epiphytic, long-repent; rhizome slender, 1.5-2.5 cm long between ramicauls; roots slender. Ramicauls slender, triquetrous, ascending, suberect, 2-4 cm long, with a loose, tubular sheath at the base. **Leaf** more or less spreading, coriaceous, ovate, subacute to obtuse, 2.5-5 cm long, 2-3.5 cm wide, shallowly cordate at the sessile base. **Inflorescence** a single flower, borne in a fascicle from a spathe 4 mm long at the base of the leaf; pedicel 6-7 mm long; floral bract 6 mm long; ovary 2 mm long; **sepals** white, striped and marked with purple, fleshy, the dorsal sepal glabrous, oblong-spathulate, obtuse, thickened toward the apex, 8-11.5 mm long, 3 mm wide, 3-veined, the lateral sepals connate into an ovate, concave, obtuse, minutely bifid synsepal, 7-8 mm long, 6.5-7 mm wide, 6-veined, with a well-defined convex, pubescent area occupying the apical half; **petals** translucent, with a purple midvein, elliptical, acute, minutely serrate above the middle, 3.5 mm long, 1.5 mm wide, 1-veined; **lip** ovoid-trilobed, cream, suffused with pink, 4-4.5 mm long, 2.5 mm wide, the apex subacute or obtuse, minutely denticulate, with erect, subacute lateral lobes on the basal third, the disc with a pair of carinae on the middle third, thickened above the base, truncate, minutely lobed at the corners, hinged to the tip of the column-foot; **column** slender, 3 mm long, denticulate at the apex, the foot 2 mm long, the anther, rostellum and stigma ventral.

VENEZUELA: **Carabobo**: Río San Gián, south of Borburata, alt. 350-500 m, 7-8 Aug. 1965, *J.A. Steyermark 94334* (Holotype: AMES; Isotype: VEN). **Falcón**: Sierra de San Luis, rain forest near Curimagua, Dec. 1959, collected by C. García, *G.C.K. Dunsterville 536* (SEL, MO). Without locality, sterile, 1854-56, *A. Fendler 2445* (K).

Probably first collected by Fendler in the nineteenth century, this long-repent species is apparently endemic in the coastal mountains of northwestern Venezuela. Dunsterville's illustration in *Venezuelan Orchids Illustrated* was misidentified as *P. consimilis* Ames which is conspecific with *P. yauaperyensis*. This species is distinguished from the latter by broader, shallowly cordate leaves; a larger, solitary flower with a long, spathulate, dorsal sepal; and a synsepal that is convex and pubescent above the middle. The lip is minutely serrate, and the calli are smooth.

Pleurothallis mexiae Luer, stat. et nom. nov.

Ety.: Named for Ynes Mexia who collected this species.

Syn.: *Pleurothallis chamensis* var. *tenuis* C.Schweinf., Bot. Mus. Leafl. 10: 176, 1942.

Ety.: From the Latin *tenuis*, "thin," referring to the membranous texture of the flowers.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, narrowly triquetrous, 3-6 cm long, with 2-3 thin, tubular sheaths on the lower third and at the base. **Leaf** erect, thinly coriaceous, ovate, subacute, 3-4.5 cm long, 1.5-2.5 cm wide, with the base rounded, sessile. **Inflorescence** a congested, simultaneously 2- to 4-flowered raceme, 1.5 cm long including the peduncle ca. 0.5 cm long, erect, along the dorsum of the leaf, subtended a spathe 4-5 mm long, at the base of the leaf; floral bracts thin, 2 mm long; pedicels 2 mm long; ovary 1.5 mm long; flowers "dark maroon with yellow-tipped petal," **sepals** glabrous, the dorsal sepal oblong, obtuse, 5.5 mm long, 1.5 mm wide, 3-veined, the lateral sepals connate ca. 3 mm into an elliptical synsepal, 5 mm long, 3.5 mm wide, 6-veined, the apex bifid with the tips acute; **petals** translucent, oblong-obovate, obtuse, minutely serrate above the middle, 2 mm long, 0.8 mm wide, 1-veined; **lip** thick, oblong-subtrilobed, 2.5 mm long, 1 mm wide, the apex obtuse, minutely serrulate, the lateral lobes below the middle, erect, broadly rounded, the disc shallowly channeled between a pair of parallel, serrulate calli on the middle third, the base truncate, hinged to the tip of the column-foot; **column** semiterete, winged, 2 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

PERU: **Huánuco**: Churubamba district, Hda. Mercedes, Cotirarda, alt. 1560 m, 21 Sept. 1936, *Ynes Mexia 8215a* (Holotype of *P. chamensis* var. *tenuis*: AMES), C. Luer illustr. 18951.

This species is known only from the original collection. It was described as a variety of *P. chamensis*, although the sessile leaf is more like that of *P. casapensis*. Morphologically, the flowers are practically identical to those of either *P. casapensis* or *P. chamensis*, but they were described as being "dark maroon." The flowers of the former species are yellow, yellow-green, or orange. I have seen no collection with dark purple flowers, although both yellow and purple colors occur commonly in many species.

Vegetatively, the two species differ markedly. The densely caespitose ramicauls of *P. mexiae* are slender and narrowly triquetrous while the stout, triquetrous ramicauls of the other two species are produced along a stout, creeping rhizome. The thin leaf of *P. mexiae* is ovate and rounded at the sessile base, similar to the thick leaf of *P. casapensis*, the leaves of which may also be cordate. The leaves of the usually much larger *P. chamensis* are more or less decurrent on the ramicaul.

Pleurothallis nortonii Luer, sp. nov.

Ety.: Named for Darrin Norton of Ludlow, VT, who has cultivated this species for many years

Planta parva, folio elliptico petiolato ramicauli longiore, racemo laxe paucifloro folio longiore, sepalis acutis liberis, petalis anguste acutis et labello oblongo canalliculato base bilobulato distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-x cm long, enclosed by tubular sheath and 1-2 other sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute, 4.5 cm long including a petiole ca. 1 cm long, 1.1 cm wide, cuneate below into the petiole. **Inflorescence** a successively and distantly 2- to 3-flowered raceme 4-5 cm long including the peduncle 2-2.5 cm long, from a node below the abscission layer; floral bract tubular, microscopically scabrous, 2.5 mm long;

pedicel 8-9 mm long; ovary 3 mm long; **sepals** translucent orange, glabrous, subcarinate, the dorsal sepal ovate, acute, 5 mm long, 1.8 mm wide, 3-veined, the lateral sepals connate only at the base, narrowly ovate, oblique, acute, 5 mm long, 1.25 mm wide, 3-veined; **petals** blackish red, narrowly-ovate, acute, attenuate, 4 mm long, 0.75 mm wide, 1-veined; **lip** blackish red, elliptical-oblong, 3.25 mm long, 1 mm wide, with the margins microscopically cellular and a minute marginal lobule between the middle and basal thirds, the apex rounded, thickened, convex, the disc shallowly sulcate between a pair of longitudinal calli from a rounded, callous thickening at the base, the base subtruncate, minutely bilobulate, hinged to the column-foot; **column** semiterete, 3.5 mm long, denticulate at the apex, with the anther, rostellum and stigma hooded and ventral, the foot 1 mm long.

VENEZUELA: Without collection data, obtained from Dunsterville by J & L Orchids, Easton, CT, cultivated in Ludow, VT, by Darrin Morton, 6 Sept. 1999, *C. Luer 19229* (Holotype: MO).

This species, obtained by J & L Orchids from Dunsterville, has been cultivated for many years by Darrin Morton at Mountain Orchids. A member of subgenus *Specklinia* section *Muscosae*, it is distinguished by a well-developed ramicaul, and a sparsely flowered raceme that slightly surpasses the leaf. The few, successive flowers are widely separated and borne on long pedicels. The sepals and petals are acute. The lip is oblong with a thickened, rounded apex, a pair of minute, marginal lobes, and a pair of basal lobules.

Pleurothallis omissa Luer, sp. nov.

Ety.: From the Latin *omissus*, "omitted," referring to the status of the species for Venezuela.

Species haec *P. fockei* Lindl. affinis, sed sepalo dorsali obtuso synsepaloque aequilongis, et labello ad apicem late rotundo cum lobis marginalis infra medium retrorsis differt.

Plant small to medium in size, epiphytic, shortly repent, the rhizome 3-5 mm long between ramicauls, roots slender. Ramicauls erect, slender, 8-11 cm long, enclosed about the base by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, sessile, 5-7 cm long, 1-1.3 cm wide, cuneate below into the base. **Inflorescence** a congested, 2- to 3-flowered raceme, ca. 5 mm long, borne by a slender, arching peduncle, 15-20 mm long, slightly thicker toward the raceme, subtended by a spathe ca. 5 mm long, from the apex of the ramicaul at the base of the leaf; floral bracts 2 mm long; pedicel 0.5 mm long; ovary 1.25 mm long; **sepals** fleshy, glabrous, light brown, with the apices convex, very slightly subverrucose, the dorsal sepal oblong, obtuse, 5-5.5 mm long, 1.75-2 mm wide, with the 3 veins purple, connate 1 mm to the synsepal, the lateral sepals suffused with purple, connate to near the apex into an oblong, obtuse, shortly bifid synsepal, 5-5.5 mm long, 3.5 mm wide unexpanded; **petals** translucent brown, elliptical, acute, minutely fimbriate, 3 mm long, 1 mm wide, with the midvein purple; **lip** dark red-purple, fleshy, ovate-trilobed, unguiculate, broadly rounded at the apex, 3.5 mm long, 2 mm wide, with the margins minutely serrate, with the lateral lobes below the middle above the claw, rounded, retrorse, the disc shallowly concave between a pair of low calli on the middle third, the base shortly unguiculate, bilobulate, hinged to the column-foot; **column** slender, semiterete, 2.5 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

VENEZUELA: **Amazonas**: Río Casiquiare, alt. ca. 500 ft., collected by D. Patrek, Aug. 1963, *G.C.K. Dunsterville 794* (Holotype: MO), C. Luer illustr. 19178.

This species is apparently endemic in lowland, Amazonian Venezuela, in the region of Río Casiquiare where the Río Orinoco connects with the Río Amazonas. It was illustrated by Dunsterville but it was not incorporated into *Venezuelan Orchids Illustrated*, possibly because of its similarity to *P. fockei*. Vegetatively, the two species are similar with a short, crowded, few-flowered raceme borne by a considerably longer peduncle. The dorsal sepal of *P. fockei* is acute and considerably shorter than the synsepal, while the dorsal sepal of *P. omissa* is obtuse and as long as the synsepal. The margins of the sepals of both species are decurved from near the middle, and the margins of the petals of both species are minutely fimbriate. The lip of *P. fockei* is acute with erect, broadly rounded sides below the middle, while the lip of *P. omissa* is broadly rounded at the apex, and with retrorse, marginal lobes below the middle above the unguiculate base.

Pleurothallis purpurella Luer, sp. nov.

Ety.: From the Latin *purpurellus*, "purple, small," referring to the flower.

Species haec *P. brigmamii* S.Watson similis, sed habitu multiminoribus, floribus purpureis multiminoribus, labello unguiculato et columnae pede ecalloso differt.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-3 mm long, enclosed by 2 thin, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, 15-30 mm long including a petiole ca, 5 mm long, 3-4 mm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a congested fascicle of single, successive flowers, borne by a slender, erect peduncle 20-35 mm long; pedicels 2.5 mm long; floral bracts thin, tubular, imbricating, 2 mm long; ovary 0.75 mm long; **sepals** membranous, purple, subcarinate, glabrous, the dorsal sepal oblong, subacute, 2.6 mm long, 1 mm wide, 3-veined, the lateral sepals connate above the middle into an elliptical, bifid lamina, 2.6 mm long, 1.8 mm wide, 4-veined, the apices acute; **petals** translucent purple, obovate-spathulate, oblique, 1.5 mm long, 0.5 mm wide, 1-veined, the apex obtuse, obscurely lobed, with the labellar margin dilated; **lip** purple, fleshy, oblong-ovoid, narrowed in the basal fourth into a claw, minutely erose-denticulate, 1.5 mm long, 0.5 mm wide, the apex minutely verrucose, rounded, the disc shallowly concave, the base narrowly truncate, with a minute lobule at each comer, hinged to the column-foot; **column** slender, 1.25 mm long, narrowly longitudinally winged, bidentate at the apex, the foot 1 mm long without calli, the anther and stigma ventral.

COLOMBIA: **Valle del Cauca**: Río Dagua, 20 Sept. 1883, *F.C. Lehmann 1043* (Holotype: K), C. Luer illustr. 16395.

This is small species, known from only the type-collection by Lehmann in the nineteenth century, is apparently limited in distribution to the western slopes of the Western Cordillera of Colombia. It is one of many species related to *P. brighamii* S.Watson and *P. striata* H.Focke It is distinguished from them by the small habit; very small, purple flowers; an unguiculate lip; and a column devoid of calli.

Pleurothallis syringodes Luer, sp. nov.

Ety.: From the Greek *syringodes*, "like a pipe," in reference to the cylindrical, sepaline spur.

Species haec *Pleurothallis mirabilis* Schltr. affinis, sed habitu et flore singulari multiminoribus, et labello angustissime cuneato subtruncato differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, weak, more or less prolific, 12-18 mm long, enclosed by 3-4 closely appressed, microscopically ciliate sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, 10-11 mm long, 4-6 mm wide, cuneate below into a petiole 0.5-1 mm long. **Inflorescence** an erect, capillary peduncle, 15-20 mm long, with a bract midway, from near the apex of the ramicaul; floral bract 1 mm long; pedicel 2 mm long; ovary 0.5 mm long; **sepals** light yellow, glabrous, the dorsal sepal transversely ovate, rounded at the apex, 3 mm long, 3.75 mm wide, 3-veined, connate 1 mm to the lateral sepals, the lateral sepals connate 7 mm with the slender column-foot into a cylindrical, slightly constricted tube 8 mm long, 1-2 mm wide, 6 mm wide at the apex expanded, the apices rounded, decurved; **petals** translucent, obovate, obtuse, concave, 2.5 mm long, 1.6 mm wide, 1-veined; **lip** very narrowly cuneate, subtruncate, 8 mm long, 2 mm wide, contracted into a slender base, descending within the tube, inflexibly attached to the tip of the column-foot; **column** semiterete, 2 mm long, the anther apical, the stigma subapical, the foot slender, 8 mm long.

COLOMBIA: **Narlño**; without locality, collected by José Luis Aguirre, cultivated by J & L Orchids 199-588, Easton, CT, 19 June 1999, *C. Luer 19186* (Holotype: MO).

This species, found in southern Colombia, is closely related to *P. mirabilis*, known to be widely distributed in southern Brazil. Both species have a long, tubular spur formed by a tubular synsepal and an exceedingly long claw of the column-foot. The equally long claw of the lip descends the length of the tube to be inflexibly attached to the tip of the column-foot, where no appreciable motion of a hinge could be expected to transpire. *Pleurothallis syringodes* differs from *P. mirabilis* in the much smaller size, a single-flowered peduncle, a proportionately longer spur, and a narrowly cuneate lip.

Pleurothallis tomentosa Luer, sp. nov.

Ety.: From the Latin *tomentosus*, "covered by short, rigid hairs," in reference to the sepals.

Species haec *Pleurothallis aspasicenso* Rchb.f. affinis, sed habitu et flore minoribus, sepalis anthracinis extus dense tomentosis intus glabris, petalis et labello glabris distinguitur.

Plant medium in size, presumably epiphytic, base of ramicaul incomplete; roots unknown. Ramicaul stout, erect, portion present 8.5 cm long, enclosed by 3 loose, partially fragmenting, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical, subacute, 8.5 cm long, 1.5 cm wide, cuneate below into the conduplicate, sessile base. **Inflorescence** a fascicle of single, successive flowers, in the sulcus at the base of the leaf; peduncles 3-5 mm long, enclosed by a spathe 14 mm long; floral bracts pubescent, 7 mm long; pedicels shortly pubescent, 4 mm long; ovary shortly pubescent, 1.5 mm long, 1-2 mm wide; **sepals** purple-black, fleshy, densely short-pubescent externally, smooth to faintly subverrucose within, the dorsal sepal elliptical-linear, obtuse, 11.5 mm long, 3.25 mm wide, 3-veined, the lateral sepals connate into an ovate, obtuse, shortly bifid, concave synsepal, 11 mm long, 5 mm wide, each half 3-veined; **petals** deep purple, fleshy toward the apex, glabrous, elliptical-obovate, obtuse, 4.5 mm long, 1.25 mm wide, 3-veined; **lip** purple-black, oblong-trilobed, 4 mm long, 2 mm wide, the apical lobe rounded, smooth, the lateral lobes erect near the middle, narrowly uncinate, antrorse, the disc with an erect, longitudinal, narrow, channeled callus from the base to the apical third, and with a pair of thick calli on the middle third, the base subtruncate, with minute lobules at the angles, hinged on the end; **column** semiterete, 3.5 mm long, the foot 1.5 mm long, the anther ciliate on the upper margin.

COSTA RICA: Without locality, ca. 1867, *A.R. Endres 630* (Holotype: W), C. Luer illustr. 18849.

This species is known only from a single Costa Rican collection by Endres in the nineteenth century. To my knowledge it has not been collected subsequently. It is one of the few species that might be extinct. It is related to sympatric *P. aspasicensis, P. sempergemmata* Luer and *P. uncinata* Fawc., but it is distinguished from them by the smaller habit and smaller, purple-black flowers. The sepals are densely short-echinate externally and smooth or faintly subverrucose within. The lateral lobes of the lip are small, uncinate, and near the middle. The callus is longitudinal with a narrow channel from the base to the apical third, and the larger callus on either side on the middle third are smooth.

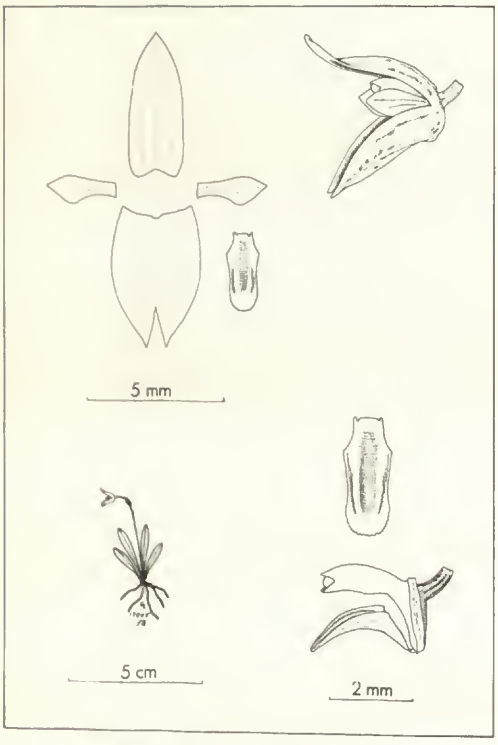


Fig. 22a. Pleurothallis brighamella

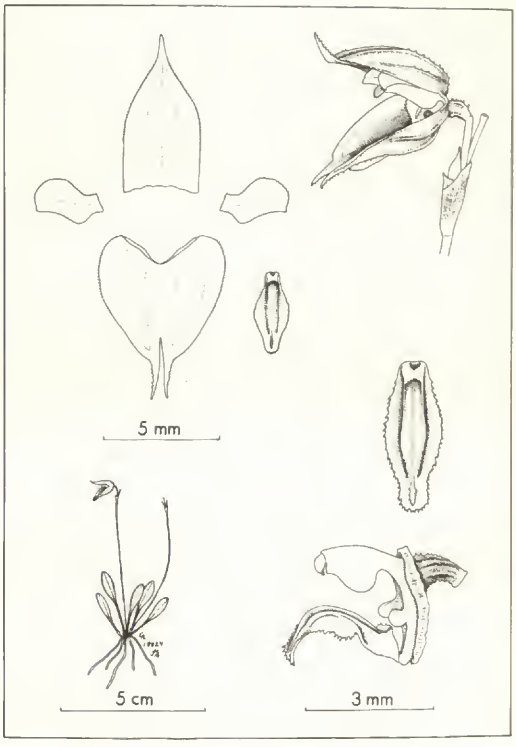


Fig. 23a. Pleurothallis coronula

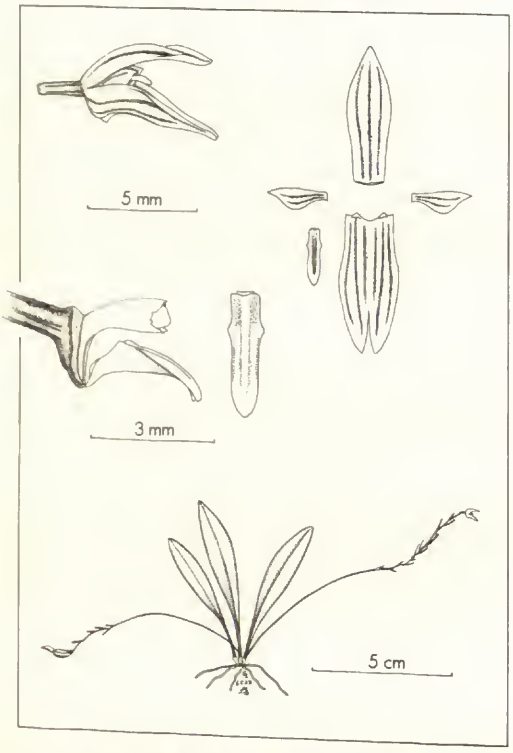


Fig. 24a. Pleurothallis displosa

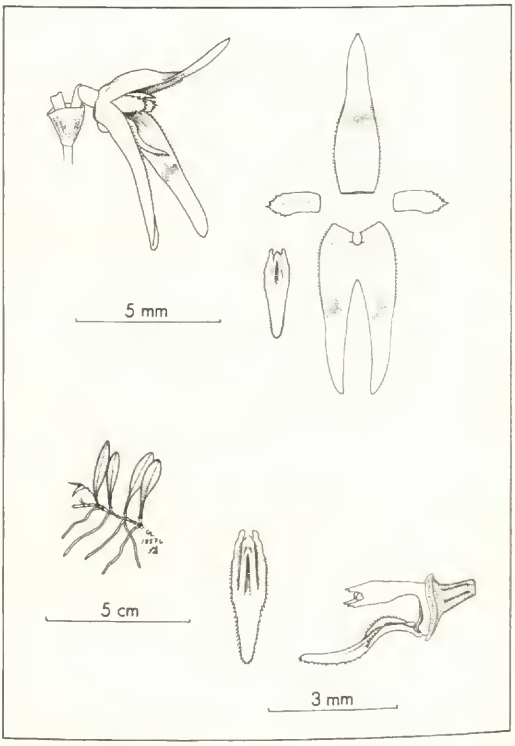


Fig. 25a. Pleurothallis endresii

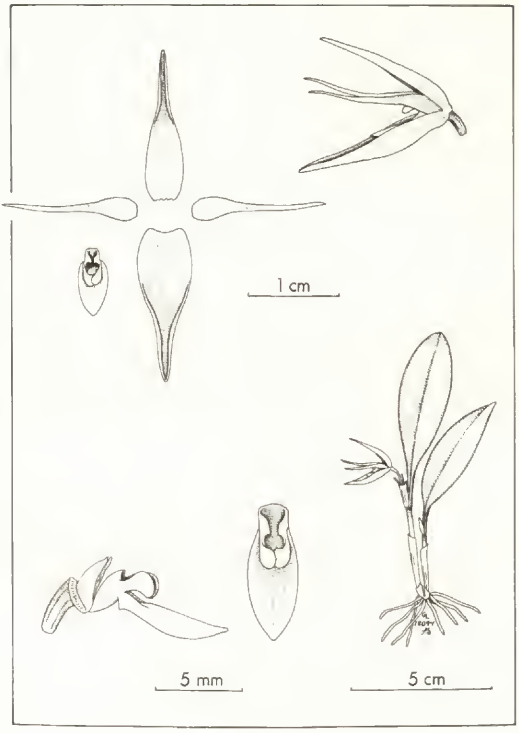


Fig. 26a. Pleurothallis fustifera

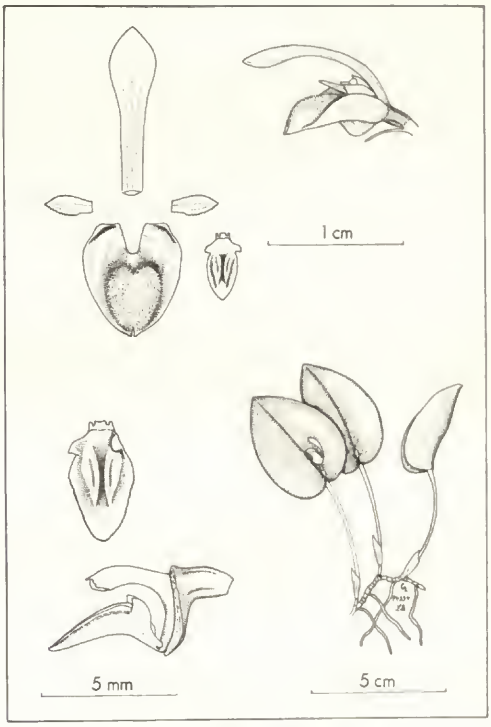


Fig. 27a. Pleurothallis garciae

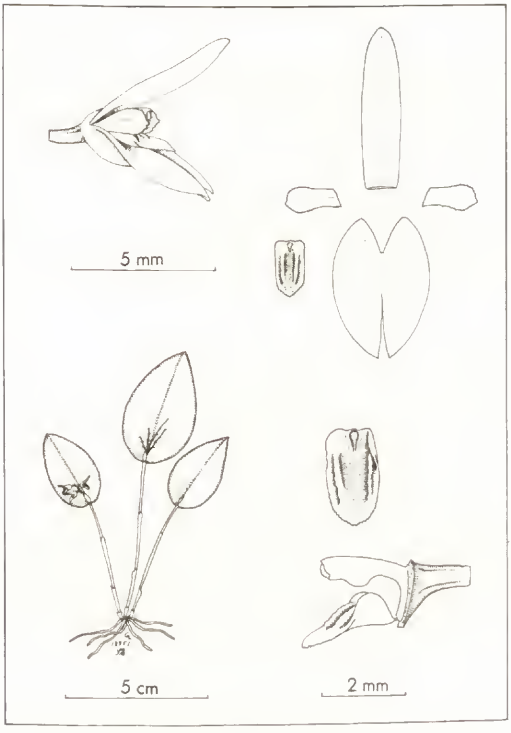


Fig. 28a. Pleurothallis mexiae

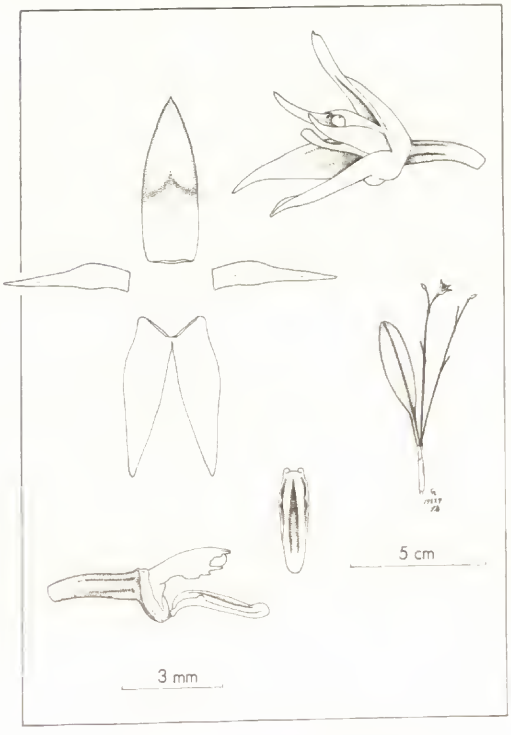


Fig. 29a. Pleurothallis nortonii

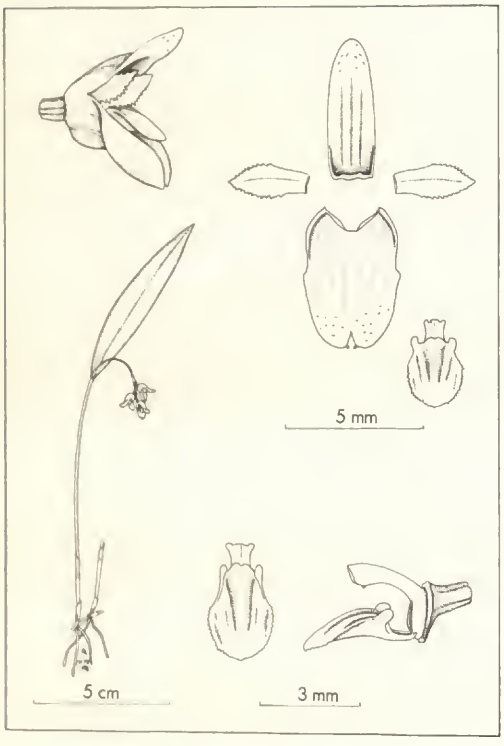


Fig. 30a. Pleurothallis omissa

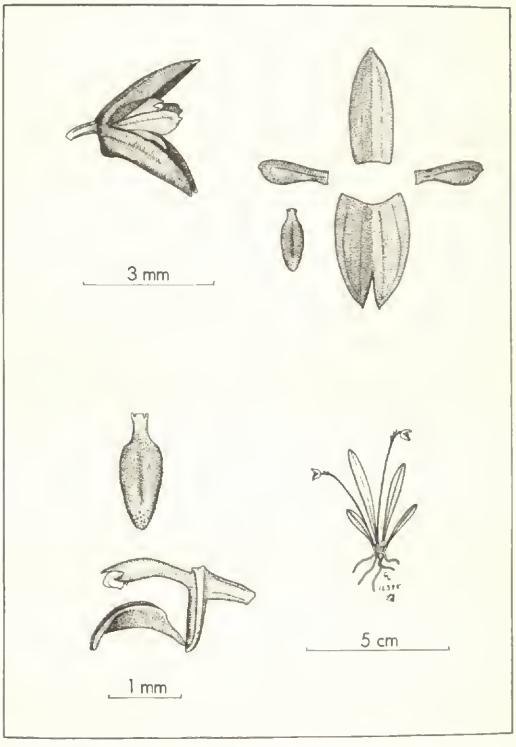


Fig. 31a. Pleurothallis purpurella

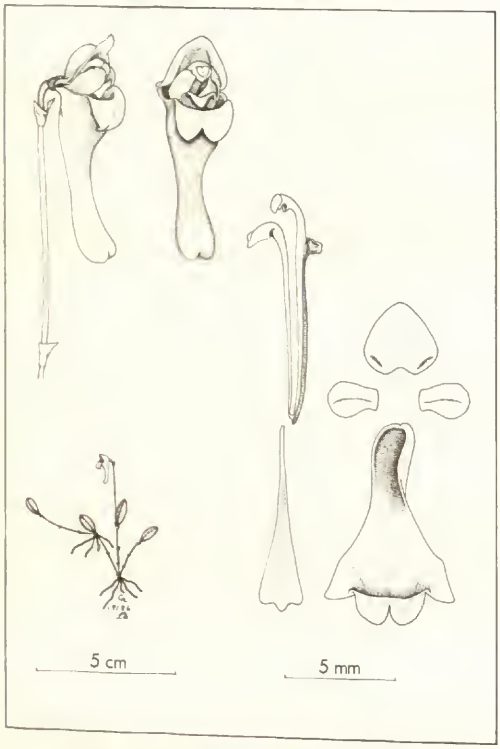


Fig. 32a. Pleurothallis syringodes

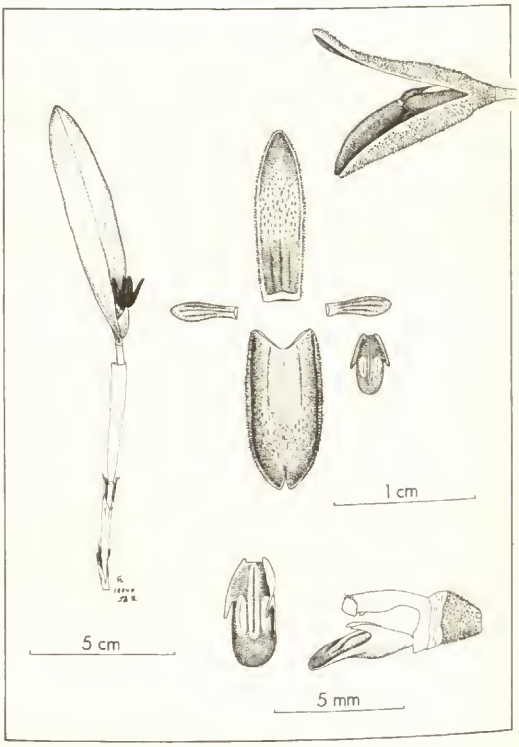
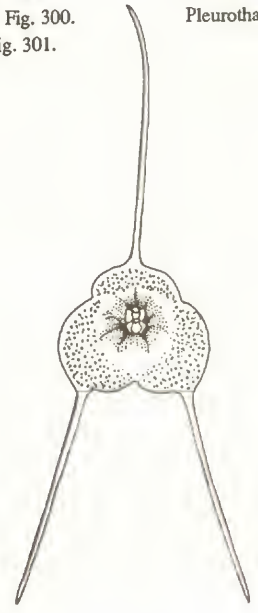


Fig. 33a. Pleurothallis tomentosa

INDEX OF SCIENTIFIC NAMES OF ADDENDA AND MISCELLANEOUS NEW SPECIES

Dracula carlueri 135, 138 - Fig. 113.
Dracula olmosii 136, 138 - Fig. 114.
Dracula schudelii 136, 138 - Fig. 115.
Dracula terborchii 137, 138 - Fig. 116.
Dryadella acuminata 159
Dryadella aurea 159
Dryadella butcheri 160
Dryadella cuspidata 160
Dryadella dodsonii 161
Dryadella dressleri 162
Dryadella fuchsii 162
Dryadella pachyrhiza 163
Dryadella rodrigoi 163
Dryadella verrucosa 164
Lepanthes abitaguae 139, 144 - Fig. 293.
Lepanthes aprina 139, 144 - Fig. 294.
Lepanthes barbigera 140, 144 - Fig. 295.
Lepanthes cloesii 165, 169 - Fig. 14a.
Lepanthes confusoides 165, 169 - Fig. 15a.
Lepanthes dactylina 166, 169 - Fig. 16a.
Lepanthes elytrifera 140, 144 - Fig. 296.
Lepanthes empticia 166, 169 - Fig. 17a.
Lepanthes glossites 167, 170 - Fig. 18a.
Lepanthes hamiltonii 167, 170 - Fig. 19a.
Lepanthes hispidosa 141, 145 - Fig. 297.
Lepanthes hydrae 141, 145 - Fig. 298.
Lepanthes jostii 142, 145 - Fig. 299.
Lepanthes laevis 168, 170 - Fig. 20a.
Lepanthes marshana 142, 145 - Fig. 300.
Lepanthes portilla 143, 146 - Fig. 301.
Lepanthes privigna 143, 146 - Fig. 302.
Lepanthes ridicula 168, 170 - Fig. 21a.
Lepanthes ruthiana 146, 146 - Fig. 303.
Lepanthes staatsiana 146, 146 - Fig. 304.
Masdevallia amoena 148, 155 - Fig. 1a.
Masdevallia carpishica 148, 155 - Fig. 2a.
Masdevallia crassicaulis 149, 155 - Fig. 3a.
Masdevallia dorisiae 149, 155 - Fig. 4a.
Masdevallia ejiriana 150, 156 - Fig. 5a.
Masdevallia fosterae 150, 156 - Fig. 6a.
Masdevallia merinoi 151, 156 - Fig. 7a.
Masdevallia rana-aurea 151, 156 - Fig. 8a.
Masdevallia schudelii 152, 157 - Fig. 9a.
Masdevallia trautmanniana 153, 157 - Fig. 10a.
Masdevallia wuelfinghoffiana 153, 157 - Fig. 11a.
Masdevallia wuerstlei 154, 157 - Fig. 12a.
Pleurothallis brighamella 171, 178 - Fig. 22a.
Pleurothallis coronula 171, 178 - Fig. 23a.
Pleurothallis displosa 172, 178 - Fig. 24a.
Pleurothallis endresii 172, 178 - Fig. 25a.
Pleurothallis fustifera 173, 179 - Fig. 26a.
Pleurothallis garciae 173, 179 - Fig. 27a.
Pleurothallis mammillata 158, 158 - Fig. 13a.
Pleurothallis mexiae 174, 179 - Fig. 28a.
Pleurothallis nortonii 174, 179 - Fig. 29a.
Pleurothallis omissa 175, 180 - Fig. 30a.
Pleurothallis purpurella 176, 180 - Fig. 31a.
Pleurothallis syringodes 176, 180 - Fig. 32a.
Pleurothallis tomentosa 177, 180 - Fig. 33a.



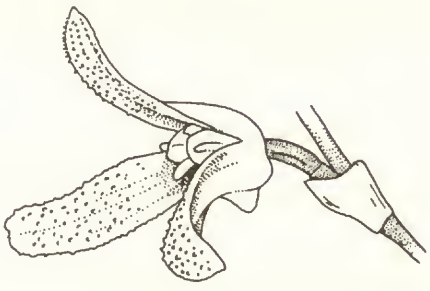
REFERENCES

ACKERMAN, J. D., 1995. Orchid Flora of Puerto Rico, 127, 129, 130-132.
COGNIAUX, A., 1910. Orchidaceae Antillanae in Urban, Symbolae Antillanae 404, 419.
DUNSTERVILLE, G.C.K. & L.A. GARAY, 1959-1976. Venezuelan Orchids Illustrated.
---------- & ----------, 1979, Orchids of Venezuela, An Illustrated Field Guide, vol. 3.
FOLDATS, E., 1970. Orchidaceae in Lasser, Flora of Venezuela 15, Orchidaceae 2: 173-452.
LINDLEY, J., 1859. Folia Orchidaceae *Pleurothallis*, 1-46.
LUER, C. A., 1986. Monogr. Syst. Bot. 20: 56-65, 79-80.
----------, 1988. A revision of some sections of subgenus *Pleurothallis*, Lindleyana 3: 133-149.
----------, 1998. Systematics of section *Pleurothallis*, Monogr. Syst. Bot. 72: 1-64.
ESCOBAR, R., 1991. Native Colombian Orchids, vol. 3., plates 490, 516-517.
----------, 1998. Native Colombian Orchids, vol. 6., plates 1211-1217, 1224.
SCHWEINFURTH, C., 1959. Orchids of Peru. Fieldiana Bot. 30, pt. 2.
SOLANO, A.R., 1993. El Genero *Stelis* Sw. en México, Orquídea (Mex.) 13: 92-95.

ACKNOWLEDGMENTS FOR ALL PARTS

I thank all the persons, especially Rodrigo Escobar of Medellín, Colombia, Alexander Hirtz of Quito, Ecuador, and Roberto Vásquez of Santa Cruz, Bolovia, and, of course, Jane Luer, who so generously gave me so much time and help in the years spent in gathering information on these species. I also thank the herbaria that made their collections available to me (AAU, AMES, B, BM, BR, BREM, G, GB, HAC, HAJB, HAL, JAUM, JE, K, HBG, LD, LE, M, MO, NY, P, QCA, S, US, and W). Gustavo Romero at AMES and Phillip Cribb at Kew have been exceedingly helpful, as has been Dan Nicolson at US for nomenclatural advice.

I also acknowledge the support of the Pleurothallid Alliance and those members who made the inking by Stig Dalström of many of the illustrations in this publication possible.



Missouri Botanical Garden Library
3 1753 00276 0103